103

POLLUTER PAYS CLEAN WATER FUNDING ACT

Y 4. M 53: 103-103

Polluter Pays Clean Water Funding A...

ARING

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COMMITTEE ON
MERCHANT MARINE AND FISHERIES
HOUSE OF REPRESENTATIVES

ONE HUNDRED THIRD CONGRESS

SECOND SESSION

ON

H.R. 2199

A BILL TO AMEND THE FEDERAL WATER POLLUTION CONTROL ACT TO AUTHORIZE AND MODIFY THE STATE WATER POLLUTION CONTROL REVOLVING LOAN PROGRAM, AND FOR OTHER PURPOSES

MARCH 15, 1994

Serial No. 103–103

Printed for the use of the Committee on Merchant Marine and Fisheries

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ISBN 0-16-044835-2

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POLLUTER PAYS CLEAN WATER FUNDING ACT

TUESDAY, MARCH 15, 1994

House of Representatives,
Committee on Merchant Marine and Fisheries,
Washington, D.C.

The Committee met, pursuant to call, at 10:00 a.m., in room 1334, Longworth House Office Building, Hon. Gerry E. Studds (Chairman of the Full Committee) presiding.

Present: Representatives Studds, Hughes, Hochbrueckner, Laughlin, Unsoeld, Taylor, Schenk, Hamburg, Fields, Coble, Torkildsen.

Staff Present: Jeffrey Pike, Tom Kitsos, Mary Kitsos, Sue Waldron, Dan Ashe, Barbara Jeanne Polo, Harry Burroughs, Cynthia Wilkinson, Lisa Pittman, Margherita Woods.

STATEMENT OF HON. GERRY E. STUDDS, A U.S. REPRESENTATIVE FROM MASSACHUSETTS, AND CHAIRMAN, COMMITTEE ON MERCHANT MARINE AND FISHERIES

The Chairman. The Committee will come to order. I want to extend a warm and hardy welcome to Carol Browner, the Administrator of the EPA. Just let me initially observe very briefly, we really are struggling with the question of how to fund the mandates for clean water pursuant to the Clean Water Act. And I don't think there is any disagreement that clean water is absolutely vital to a quality environment and to a sound economy, but keeping that water clean is a very difficult and a very expensive task.

In 1976, four years after Congress passed the Clean Water Act, the Federal Government spent $9 billion for grants to local governments for clean water projects. In 1993 dollars, that is the equivalent of $22 billion. And because of that early investment, much progress was made toward achieving cleaner and safer waters.

But this obviously is not 1976. In the mid–1980's, under previous Administrations, Federal support was severely curtailed and water quality suffered as projects were put on hold.

Today, in the face of our contemporary deficit, we are looking at a Presidential request of $1.6 billion to help our cities, towns, and counties keep our water clean, at least in terms of the state revolving funds. In 1976 dollars, that is equal to roughly $645 million. Right now, in other words, the Federal Government is spending less on clean water than at any time since enactment of the Clean Water Act. That is not what we want, but the truth appears to be that is all we can afford.

And it is interesting to ask ourselves how our rivers and streams and estuaries would look today if we had in fact invested only $645 million in 1976? Or to ask ourselves what they will look like 20 years from now if all we can afford today is that same $1.6 billion.

We cannot turn our back on clean water for a whole host of reasons. We need more money for implementation of the Act, for traditional construction projects, for advanced treatment, control of combined sewer overflows and stormwater, for control of polluted runoff, and for comprehensive watershed management which is a potentially promising approach but which will be very expensive to do well.

Keeping water clean has not gotten any easier since 1976, and it has certainly not gotten any cheaper. The Federal Government has a responsibility to promote clean water, and H.R. 2199 is at least one approach to living up to that responsibility.

The taxes that are proposed in that bill are certainly far from the only possible sources of revenue. There may be others that should be considered, and then there will be a better balance between the funding sources. All ideas are welcome.

I am not at all wed to any one approach or any single provision in the bill, but I am committed to its ultimate goal of identifying alternative revenue sources that will allow us to put our money where our mandates are.

Without objection, the statement from the gentleman from Texas, Mr. Fields, will appear in the record.

[Statement of Jack Fields follows:]

STATEMENT OF HON. JACK FIELDS, A U.S. REPRESENTATIVE FROM TEXAS, AND RANKING MINORITY MEMBER, COMMITTEE ON MERCHANT MARINE AND FISHERIES

Mr. Chairman, I appreciate your scheduling this hearing on your ambitious Polluter Pays bill. H.R. 2199 makes a bold statement by authorizing $4 billion in new taxes to finance water pollution control activities. While I support funding of waste water treatment plants, I have serious reservations about the establishment of these new taxes.

In fact, I am not alone in this. President Clinton does not support new taxes to pay for water quality improvements. Instead, the Administration has advanced a proposal to collect permit fees from those who discharge and alter wetlands and for environmental laboratory inspections. According to initial estimates by the Environmental Protection Agency, these measures would produce an additional $500 million a year under the Clean Water Act. Furthermore, neither the Senate Clean Water Reauthorization bill nor the measure recently introduced by the Chairman of the House Public Works and Transportation Committee contain any new tax provisions.

The President has also requested additional Federal resources to help capitalize State Revolving Funds (SRFs), which loan monies to municipalities to construct new sewage treatment plants and for other water pollution control activities. I agree that SRF support must continue in FY '95 and am willing to go even farther. The Views and Estimates report that the Merchant Marine and Fisheries Committee submitted to the House Budget Committee requests that $2 billion be appropriated for the SRFs. This is $400 million more than the President's budget request and almost $800 million more than last year's appropriation. Certainly, no one can accuse you, Mr. Chairman, or this Committee of shirking our responsibility to maintain and restore our vital coastal water resources.

Mr. Chairman, having said that, I want to applaud the innovations in your bill which make the State Revolving Funds more flexible and attractive to local municipalities. These innovations will reduce the costs associated with funding Clean Water Act projects and will hopefully increase the amount of available funds for actual construction. Special relief for disadvantaged communities and low-income water and sewer assistance is also a meritorious effort.

Finally, as a representative from the State of Texas, whose population has dramatically increased in the last 20 years, I strongly believe that the formula for distributing the Federal money to the various State Revolving Funds must be updated to more accurately reflect this growth. This change is long overdue and I will vigorously pursue it.

Mr. Chairman, I want to compliment you for your convictions and for presenting a solution to the growing problem of unfunded Federal mandates. I look forward to hearing from our distinguished witnesses and further debate on the Polluter Pays Clean Water Funding Act.

Thank you, Mr. Chairman.

The CHAIRMAN. Are there additional opening statements? The gentlewoman from California.

STATEMENT OF HON. LYNN SCHENK, A U.S. REPRESENTATIVE FROM CALIFORNIA

Ms. SCHENK. Oh, thank you, Mr. Chairman. I don't have a formal opening statement except to welcome Administrator Browner and hope the next time she appears we can call her Secretary Browner and look forward to her statement. Thank you.

Mr. CHAIRMAN. Ms. Browner, you are designated panel one, which is an awesome responsibility, in and of yourself you are a panel. We are delighted to have you back again, and although I think you probably have been asked by staff, as have all witnesses, to try to confine your oral presentation to five minutes, we will be certainly flexible with you on that. I know you have a lengthy and detailed statement. I hope you won't feel compelled to read it all, but please proceed as you deem appropriate. It is very nice to have you here, welcome.

STATEMENT OF CAROL M. BROWNER, ADMINISTRATOR, ENVIRONMENTAL PROTECTION AGENCY

Ms. BROWNER. Thank you, Mr. Chairman, and I would ask that my written statement be included in the record, and I would like to make some brief opening comments on it.

It is a pleasure to work with this Committee, with the Members of this Committee, and to appear today to discuss the issue of clean water.

I think as we are all well aware, Americans care about their water. They care about the rivers, the lakes, and the streams in their communities. Millions of people in this country make a living off of those surface waters. They are a primary source of recreational opportunities for many American families. People choose to live near rivers and lakes; businesses choose to locate near rivers and lakes.

A 1993 Times Mirror Poll found that 77 percent of the public believes that government should do more to control the pollution in our surface waters. The Clean Water Act, which was passed—the original Clean Water Act which was passed in 1972, has done much to improve the water quality of our rivers, lakes, and streams. Yet, we are all well aware that today serious quality problems continue and they threaten to grow unchecked, and it is necessary to develop solutions to these problems if we are to provide the level of water quality and quantity that is so important to the people of this country.

Since the passage of the Clean Water Act in 1972, despite all of our efforts, 40 percent of our rivers, lakes, and streams today are still not clean enough for fishing and swimming. Fish advisories and beach closures have become far too common in this country.

Seven hundred and forty million pounds of toxic chemicals pour into American waterways and sewers each year. The result is not only the degradation of our surface waters, it is also an increase in the treatment of our drinking water supplies.

The Administration has proposed comprehensive changes to the Clean Water Act. The goal of our proposals is to reduce water pollution at a reduced cost to the nation. The proposals that we have presented to this body would result in a $30 billion savings per year, compared the cost of continuing on the path of implementing the current law.

For the first time ever, we would call on states to take an integrated, comprehensive approach to watershed protection, to look at not just what is in the water, but how it actually got there. To look at pollution prevention, to look upstream to prevent the pollution from occurring in the very first instance, rather than waiting to clean up the waters once they have become polluted.

To explore market-based approaches, pollutant tradings within a watershed system, to find the best solution for that watershed at the least cost. We are also calling for changes in the law that would allow us to tackle the most difficult remaining problem. We have done a good job in many instances of dealing with point sources, but we have not done an equally good job of dealing with polluted runoff, the runoff of water from a variety of sources, including industry, farms, city streets, lawns.

If we are going to protect our waters, we are going to need to deal with polluted runoff. So we are calling for changes in the law to give us and the states the ability to address this problem while maintaining the flexibility that we think are important.

Stormwater, an issue that I am sure every Member of this Committee is keenly aware of, is the second biggest problem affecting the quality of our surface waters after polluted runoff. We believe again the law needs to be changed, that we need to target the biggest sources and then we need to give flexibilities to the state and local governments to handle the smaller sources.

So we are looking at changing the law to create flexibility, to cut red tape, to give states, local government and businesses the resources that they need to address the most serious problems.

In our proposal, we do call for the expansion of the state revolving fund. That is the money that is made available to the states, it was historically in the form of construction grants. Beginning in 1987, it became a fund, a revolving fund, in that the Federal Government provided money to the states who then loaned the money to the local governments. As the money was paid back, money was available to fund other projects.

Mr. Chairman, as you are keenly aware, when we look at the needs across this country in terms of wastewater treatment facilities, they are quite large. We do a needs assessment every two years. The most recent one shows the needs to be in excess of $100 billion, in terms of the infrastructure necessary to treat the wastewater to the degree that we think is important to protect our surface waters.

So we appreciate the leadership that you have provided, Mr. Chairman, in looking at these funding issues and developing a dialog on how to secure the resources that would be necessary to address the needs that we see across the country, and we are more than happy to answer any questions and to work with you to develop solutions to these problems.

[Statement of Carol M. Browner may be found at end of hearing.]

The CHAIRMAN. Thank you very much. I join Ms. Schenk, it is much easier to say Madam Secretary than Madam Administrator anyway. We hope that will be very, very soon.

As I indicated in my brief opening remarks, if we were spending this year as much as we were in 1976, we would be talking today about roughly $22 billion for the state revolving funds. It is clear, I am afraid that the Federal Government is spending less on Clean Water Act compliance than it ever has before, and obviously the corollary of that is that the burden on local communities is dramatically greater than it has ever been before, and it is going up.

Would you agree with me that if our objective is the twin one of simultaneously somehow taming the deficit which we are facing, and substantially increasing funding for Clean Water Act compliance, that we have got to look for new funding sources outside the traditional ones?

Ms. BROWNER. Yes, Mr. Chairman, I would agree. In fact, in the Administration's recommendations to Congress on reauthorization of the Clean Water Act we have called for a study of alternative funding mechanisms because of our concerns of adequate dollars to meet the growing need that we see across the country.

The CHAIRMAN. Can I tempt you into further concluding that the concept of making the polluter pay, some or all of those additional revenues, is a logical philosophy as we look for additional sources?

Ms. BROWNER. I certainly think it is one worthy of study. It is a concept that exists in other environmental statutes. In the changes that we make and the recommendations that we make to you in changing the Clean Water Act, one of the things we are looking at is permit fees similar to the Clean Air Act permit fees that were adopted by this body in the 1990 Clean Air Act Amendments. And I think that you are quite right, and we would hope that in the study that Congress would direct us to undertake in the Clean Water Act reauthorization, that those are the sort of issues we would be looking at.

The CHAIRMAN. Let me say with regard to that study, the President's policy as you say calls for a study on the feasibility among other things, precisely of fertilizer taxes, toxic discharge taxes, and other what you call promising market-oriented incentive approaches.

First of all, the suggestion as I understand it is for a three-year study. That is like a lifetime to a lot of our ratepayers out there as you know given the extraordinary increasing rate annually, the rate at which these things are increasing around the country. Don't you think we might be able to get that done a little more quickly than three years?

Ms. BROWNER. Mr. Chairman, we would be more than happy to work with you to see if there is a way to shorten the time period of the study. I think we would all agree that if we are directed by Congress to undertake such a study, that it should be inclusive, that we want to involve the appropriate people on the front end of the study, to have a large group of participants in terms of evaluating the various options, in terms of developing new options, in terms of funding mechanisms. But we would be more than happy to work with you to see if we could shorten the time period of such a study.

The CHAIRMAN. Yeah, I think maybe I should have said significantly shorter than three years, and you have just anticipated the second part of my question, that is, to broaden the study. The reference as I recall of the President's initiative was to an EPA study. Obviously, it needs to be broader than that. Later today, the Water Environment Federation is making an offer to organize and convene a forum on Clean Water Act funding and alternative revenue sources.

I don't know whether that is the forum or that is the means to use, but I do think we need it to find a way to include not just your agency but academia, industry, state and local officials and governments, and maybe one or two human beings, like ratepayers, who have really experienced this and to really broaden this to the point where we are covering all the responsible approaches. Maybe we need to reinvent the study a little bit or at least certainly to broaden the concept.

Ms. BROWNER. Mr. Chairman, we would be more than happy to work with you. The proposal as it currently appears in our recommendations to Congress, I think, involved an interagency task force made up of EPA, Department of Agriculture, Treasury, CEA, OMB. It did call for a public comment, but I think you make a good point about involving the public on the front end not just waiting to hear from them once we have developed a set of proposals.

We are certainly attempting to do that in much of our work at EPA, to bring the public in on the front end, and I think that is an extremely good proposal that you made.

The CHAIRMAN. I appreciate that. Let me just observe, Members may not be able to see it, but my red light is on I think. I don't know why they are not working, but until such time as they do, we will use our imagination. The gentleman from North Carolina.

STATEMENT OF HON. HOWARD COBLE, A U.S. REPRESENTATIVE FROM NORTH CAROLINA

Mr. COBLE. Mr. Chairman, I commend the gentleman from New England for admitting his red light was on. Many chairmen don't do that in this town, I commend you for that.

Madam Administrator, good to have you here. Clean water, safe water, clean air, other environmental issues involve for the most part two distinct groups: One group would like for no rules nor regulations to apply to anyone; another group would like nothing but rules and regulations to apply to everyone.

I am not convinced that these two schools of thought represent solutions. I think a need for balance is essential in responding to environmental problems, and I suspect you would agree with that. Do you not agree with that?

Ms. BROWNER. I believe that you are right, that there is a need for balance. We need to understand the problems, and then we need to develop the most cost-effective solutions. But I also think that we have a responsibility in our work at the Environmental

Protection Agency to always assure that we are doing everything we can to protect the public's health, that that is our responsibility.

Mr. COBLE. Permit me to ask two questions that are fiscally related: What are the average taxes, fees and/or other charges currently paid by dischargers into U.S. waters, and if you don't know—do you have a ball yard figure for that?

Ms. BROWNER. We can provide you a more detailed answer in writing. There is a permitting scheme, the NPDES, that does have permit fees associated with it, related to discharges. The Administration has proposed in reauthorization of the Clean Water Act that Congress consider something similar to what you did in the Clean Air Act Amendments of 1990, in terms of helping the states expand their ability to collect permit fees so that they can have adequate funds to run the programs at the state level, a backdrop, if you will, or backstop similar to what was included in the Clean Air Act.

Mr. COBLE. But you can provide us with, if not today, some other time——

Ms. BROWNER. It varies, it is hard to give you a precise answer, but we will certainly give you a detailed answer in writing.

Mr. COBLE. I would appreciate that.

Ms. BROWNER. Thank you.

Mr. COBLE. Are there—I am trying to think of the right way to say this—are there any legal impediments imposed against states for charging taxes for discharges into the state waters to pay for water pollution control and remediation projects, number one; number two, have any states pursued this policy, and if so, have these programs functioned harmoniously and effectively?

Ms. BROWNER. There are a number of states that have adopted legislation that allows for the assessment of fees associated with stormwater treatment. That is one category of fees that states have looked to. Generally, the way it has worked, although it has been very different from state to state, is that there is state authorizing legislation that gives flexibility to the counties or to a water management district, to assess a property tax of some sort, a per acre fee, that then becomes the funding mechanism for dealing with stormwater issues.

Thirty states now collect a permit fee on discharges and that, again, it varies from state to state. So there really have been two funding mechanisms to address the impacts to the rivers, lakes, and streams. And in some states you have both. You have states using both.

Mr. COBLE. Thank you. Mr. Chairman, in conclusion, I would move that the statement of Congressman Saxton be entered into the record.

The CHAIRMAN. Without objection.

[Statement of Mr. Saxton follows:]

STATEMENT OF HON. H. JAMES SAXTON, A U.S. REPRESENTATIVE FROM NEW JERSEY, AND RANKING MINORITY MEMBER, SUBCOMMITTEE ON ENVIRONMENT AND NATURAL RESOURCES

Good morning. I am looking forward to discussing Chairman Studds' legislation today, because I am well aware of the pressing need to help our small communities with Clean Water Act -mandated water treatment improvements.

In my own district, I have a number of smaller towns—Lavalette, Cedar Run—searching for help in meeting these requirements. The difficulty lies in the gap between Federal funding, the availability of State Revolving Loan Fund monies and the number of communities vying for the funding.

I appreciate the opportunity to explore the concept of "Polluter Pays" and will be requesting information mostly on how this legislation would assist my small towns and communities facing hardship in meeting their water treatment needs.

Thank you.

The CHAIRMAN. The gentlewoman from Washington.

Mrs. UNSOELD. Thank you, Mr. Chairman, but I think that there were others ahead of me. I would be happy to take the turn now but—to stick with your——

The CHAIRMAN. Let me say that the Chair in his dotage is doing the best he can to follow what he understands to be our procedure, that is, everyone who is here at the beginning at the hearing be recognized in the order of their seniority and after that in order of their arrival. Were you late?

Mrs. UNSOELD. Yes, teacher, I was late.

The CHAIRMAN. We will ascertain by staff how late. I thank the gentlewoman. The gentleman from Mississippi.

Mr. TAYLOR. Thank you, Mr. Chairman. Ms. Browner, I am one of those people who you see somebody and it jogs your memory. Just for—to help me out on this—the last time you appeared before this panel you were asking for some money to clean up wastewater in Mexico. How much money was that?

Ms. BROWNER. The last time I appeared before this panel it was with Ambassador Kantor and I believe Secretary Babbitt and I think we were discussing NAFTA broadly. The Administration's proposed budget which has been presented to the Congress does include funds for colonias and other activities along the border. I think the total dollar amount is 170 million—we will get the total dollar amount for you that was included in the President's budget request to the Congress.

Mr. TAYLOR. OK, and the President's request to clean up wastewater in this country is how much this year?

Ms. BROWNER. The funds that we are seeking are $1.6 billion to be divided among the 50 states. That would increase to $2 billion in the following years for a total of $14 billion over an eight-year period.

Mr. TAYLOR. And if I am not mistaken, one of the Administration's goals early on, and please tell me if this has been changed, was to rather than the practice of Federal funds helping out communities to upgrade their sewage treatment plants, the emphasis of this Administration is going to be help those older communities where stormwater and sewage actually went into the same line, to clean that up, is that not correct?

Ms. BROWNER. We recommended to Congress several changes in the use of the state revolving fund money. There are currently limitations on the use of that fund, and we are recommending changes so that there will be greater flexibility for individual states to make the decisions that they think are appropriate for their state.

In the current law, there is a cap of 20 percent of Federal funds to a state in terms of using those funds to address the combined sewer overflow problems.

Now, there is a provision in the current law, which apparently no state has used, which would allow them to waive that cap. But, I believe our recommendations for combined sewer overflows are to focus the controls where they are the most needed. This is a change from the 1986 law.

Mr. TAYLOR. One of our early concerns, and you tell me if it was correct of the President's budget last year, was that he phased out the money for people that had strictly sewer problems and increased the money for people who had combined stormwater problems. Was that change somewhere during the——

Ms. BROWNER. I think perhaps——

Mr. TAYLOR. I think it was, I am just asking.

Ms. BROWNER. I think, have been fairly consistent in the position we have taken as regards to the SRF. We believe that states need to have greater flexibility in how they use those funds. What is right for one state may not be right for another state.

Mr. TAYLOR. OK. Would you say, in your position, what are the greatest sources of pollution? Are they urban or rural areas?

Ms. BROWNER. It is hard to have an answer that will be accurate for every watershed, for every system across the country. We do believe that the current law gives us a very good tools in terms of dealing with point source pollution problems; however, we do not think that we have adequate tools nor do the states believe that they have adequate tools for dealing with the non-point source, which is a combination of agricultural runoff, industrial runoff, and urban runoff.

One of the principles of the proposal that we make is to give states the opportunity to develop watershed plans, individual plans, so that they can decide what is the problem that they just address first, second, and third.

Mr. TAYLOR. The reason I am asking you is the early efforts in this country to clean up wastewater dealt with city sewer, dealt with industrial pollution and now later down the line they are looking at non-point. From what I can see from the CRS study, and I am only a couple of pages into it, appears the rural areas of this country would be paying for this cleanup. It is mostly based on agricultural products, agricultural chemicals, those animal feeds, and I am just wondering if in your opinion that makes a lot of sense to ask the rural areas, which I don't think contribute a lot of point pollution, to pay for the point pollution problems of the cities and the big industries of this country.

Ms. BROWNER. But the most significant degradation to our rivers, lakes, and streams today is the non-point source. And it is a combination of activities that are resulting in that degradation, but it is clearly the non-point source as opposed to the point source.

Mr. TAYLOR. But you are including city rainwater in your non-point?

Ms. BROWNER. Non-point sources including anything that happens in wet weather.

Mr. TAYLOR. So an awful lot of that is being generated in urban areas? I mean, you know, non-point in some people's mind is strictly farm runoff and whatnot. You are calling a non-point anything that doesn't come out of a household or a factory?

Ms. BROWNER. Mr. Taylor, that is right. We refer to non-point as being not just agricultural runoff, but also industrial and urban runoff.

Mr. TAYLOR. Thank you. Thank you, Mr. Chairman.

The CHAIRMAN. The gentleman from Massachusetts.

Mr. TORKILDSEN. Thank you, Mr. Chairman. I too hope that we can refer to Administrator Browner as Secretary Browner next time you are here and appreciate you coming and Mr. Chairman, applaud you for initiating this idea because the discussion has to take place on where are we going to get the money from.

A couple questions about your testimony, and just having seen it now, you can let me know if I have read it correctly. You are saying that you think states should have the option of going to a 30-year payback?

Ms. BROWNER. Yes.

Mr. TORKILDSEN. As long as they don't exceed the value of the life of the project. Negative interest rates of up to minus two percent, again that would be the option. The limit mentioned in your testimony says that there would be a ten percent of the value of the loan. Now, would that affect the 30-year payback or would that be——

Ms. BROWNER. Oh, let me—perhaps I can clarify the changes that we propose. We propose that there be a mechanism for disadvantaged communities. We are all familiar with the communities, such as the one you make reference to, that don't have the rate base to pay back a loan from the state revolving fund on a 20-year basis, but could do it within a 30-year basis. There will be other communities quite frankly where even at a 30-year payback it will be hard for them to take advantage of the fund.

So we recommend to Congress that the law be changed to allow states to use up to ten percent of the loans that they make, the total loans that they make, to address the concerns of disadvantaged communities, to give flexibilities to those communities so that they can participate in this system.

So, it is ten percent of the entire loan pool, not ten percent of the individual loan made.

Mr. TORKILDSEN. OK. Now, how would that work though if—and again, in my district we have a handful of communities that are being ordered to build a 240-million-dollar plant. I mean, an enormous burden. The rate escalation would be incredible. If they, and I hope that at a minimum they would qualify for this extension, if they were to get that 30-year payback period, how would that impact the State of Massachusetts ability to lend money? Because the money is being paid back, it is just over a longer period of time.

Ms. BROWNER. Right. The goal again of the SRF is to have—on an annual basis across the country—$2 billion being lent out, and then because payments are being made back, you can have another $2 billion in the following year to lend out.

Within individual states you may have some fluctuation because of how they structure and how they define. Because we give flexibility to the states to define disadvantaged communities, to make their own decision as to what they think is appropriate for participation in this ten percent fund. Again, the answers will vary state to state in terms of how they define disadvantaged communities.

But we believe that even if you look—if every state were to make a similar definition and have lots of people participating because of the cap at ten percent, we will be able to stay within that range of $2 billion a year rotating through the system.

Mr. TORKILDSEN. OK. And you also, the Administration recommends extending funding until 2004, and I applaud that as well.

Early in your testimony you make a comment about amendments to CWA should be crafted to minimize unfunded mandates, and yet I do not see anything reading your testimony that said that the Administration was trying to stop the enormous unfunded mandates that are already in place. Is there any hope at all that there are going to be fewer unfunded mandates or at least some funding coming for these?

Ms. BROWNER. Well, I actually think that the proposal that we have made to Congress is remarkable in its efforts to deal with the issue of unfunded mandates. We have already talked briefly about combined sewer overflows in terms of the cost to local communities. Stormwater is another cost to local communities. We have suggested some very significant changes in both of those programs in terms of targeting to put resources into the most—the worst problems, and to allow flexibility on a state-by-state basis in terms of the other problems that need to be dealt with.

The effect of the changes that we propose when compared to the 1987 law is a $30 billion savings including savings for local governments and for the states of this country. In addition to that, we call for, as you noted, the expansion of the state revolving fund of $14 billion over 8 years.

Mr. TORKILDSEN. OK. I applaud what the Administration is doing for the 30-year payback option, the negative interest rate option, extending funding, and those are all necessary steps. In many communities, and it is not just Massachusetts though, even with those steps, as positive as they are, you are going to see a major economic upheaval if these mandates go through unfunded.

The Administration has been nice enough to include $100 million for the cleanup of Boston Harbor through mass water resources, and I applaud that, I am not trying to take that money away. There are other communities though that need some direct grant money, and if it is not this proposal, I think it has to come from some proposal.

In meeting with you and Director of the Budget, Leon Panetta, I was under the impression that we had a commitment there would be some type of grant money. And I just want to reemphasize that there has to be some grant money there because even with these steps, and I applaud them, I am not saying that they are not positive, they are, we need some Federal grant money or you are going to see unemployment rates in communities with these mandates hitting 15 percent or higher, you are going to see such a catastrophe. And so I want to emphasize that point and hope I would have your commitment that there will be some grant money, not just the revolving funds, but grant money, to these communities that are being affected by these Federal mandates.

Ms. BROWNER. Thank you.

The CHAIRMAN. The gentlewoman from California.

Ms. SCHENK. Thank you, Mr. Chairman. Administrator Browner, as you well know, I represent a coastal community and have probably we suffer from every problem that you mention, non-point pollution in San Diego Bay has been an ongoing problem, and a couple that you didn't mention, the Mexican sewage that flows over and the millions of gallons coming across the border and landing on our beaches. I won't go into that this morning, except to thank you for your willingness to work closely with me to finally seek a resolution to that issue.

With respect to H.R. 2199, I would like to just ask a couple of questions about that. The 1992 EPA needs survey identified $137 billion capital needs. But as I understand it, that did not include controlling the combined sewer overflows, the stormwater or the non-point source pollution, is that an accurate understanding?

Ms. BROWNER. It does include combined sewer overflow, the cost of dealing with that, in the most recent needs survey.

Ms. SCHENK. What about stormwater or the non-point?

Ms. BROWNER. I don't think stormwater or non-point are included; I think that is correct.

Ms. SCHENK. I don't know if you or some of your staff might have a ball park estimate of what that would take the number up to? If you don't have it here today, I would like to get that if I could.

Ms. BROWNER. We will certainly provide that to you in writing.

Ms. SCHENK. OK, thank you. The taxes that we have proposed in H.R. 2199 are targeted on activities which are major sources of water pollution. Could you just share with us to what extent you believe that these taxes would provide a significant economic incentive or deterrent to the kind of pollution that we are trying to get at?

Ms. BROWNER. We—one of the reason we have called for this study is precisely that, to fully evaluate and understand not just what the revenue collection would be, but also what the deterrent effect would be. And I think that we want to undertake a comprehensive study before trying to answer that question.

There are certainly numbers of people who suggest that the deterring—the deterrent effect would be significant. There are others who have some questions about that, and I think it is absolutely worthy of a comprehensive study.

Ms. SCHENK. Well, I would join with the Chairman's request that this study be done as expeditiously as possible, the sooner the better, and we are all eagerly awaiting that from you. If there are any opportunities for you to make sort of expert guesstimates on that issue before, I certainly would like to hear that.

Let me ask about the burden on small business. Is that going to be included in the study as well?

Ms. BROWNER. Absolutely, we would look at the effects on small business. Small business is something that has been a major concern for this Administration and the Clean Water Act recommendations of changes that we make to you all. One of the things we proposed for example is the 7 million or so commercial and light industries that would be required under the current law to get NPDES permits, for their storm water but would not be required to get such permits under the President's Clean Water limitations. We think there are better ways of dealing with those stormwater issues. And so those are the type of flexibilities we are hoping to secure in the reauthorization process, aimed precisely at small businesses.

Ms. SCHENK. Since about 96 percent of the businesses in San Diego are small business of under 50 people, it has an enormous impact, and I for one want to be very sensitive in any decisionmaking of the impact on small businesses as we move forward.

I just have one last question. What is EPA's position on set asides on the state revolving fund for estuaries or watersheds which I also have in my district?

Ms. BROWNER. In the current law, the current law as it relates to the state revolving fund, there are opportunities for states to use a portion of their fund for both non-point source and estuary, both in the development of the plans in the National Estuary Program and then in the implementation of the recommendations.

In the changes that we propose to the Clean Water Act is the way in which we want to take the National Estuary Program across the country and build on those successes, and so there are tremendous incentives for states to develop watershed protection plans, to look at watersheds in the way they do in National Estuary Plan and develop comprehensive solutions and there are flexibilities then in terms of the SRF money.

Ms. SCHENK. OK. Thank you very much. I appreciate your testimony and yield back the balance of my time.

The CHAIRMAN. Will the gentlewoman from Washington accept recognition at this time?

Mrs. UNSOELD. Thank you very much, Mr. Chairman. Thank you for the work you are doing on this topic.

Administrator Browner, I would like to commend you for what I would term a philosophy of pragmatic idealism but not only in this area, but in other—on other issues on which you deal. I very, very much appreciate the spirit with which you are approaching these problems.

I am increasingly aware that as much as we need to figure out ways to help communities develop, build facilities, to take care of the sewage treatment problems, and the need we have to encourage large polluters to get involved. But there is another problem.

I have a lot of shellfish, commercial shellfish areas, and those are in very rural areas. Some of them one home per five acres. Some of them one home for two and a half acres. But failing septic tanks are a big problem. And the nature of the soil is not one that lends itself to simply rebuilding a septic tank.

In doing just a little bit of research, I have discovered that there are some state, some local, but I believe also some Federal difficulties in encouraging on-site nontypical technology, innovative technology. Because it is never going to be that those homes that spread that far apart are going to be hooked up to a sewage treatment line.

And I am wondering, one, are you looking at that area, and two, is there somebody within your agency with whom I could work on helping to develop ideas, or at least learn from, because I think that is a problem that would help make more feasible the cost of clean water.

Ms. BROWNER. We would certainly be more than happy to work with you in terms of looking at some of the innovative technologies. I am familiar with some of them, and I know there is work going on across the country to deal with this sort of problems that you make reference to, and we would certainly be willing to work with you.

In the Clean Water Act Reauthorization, again I think that the watershed approach will allow local communities to make those kind of decisions and to prioritize within a watershed what are the problems and what are the available solutions.

Right now, I think it is fair to say that that is a more difficult thing to undertake, and that is why we have called on Congress to make the kind of changes and create the sort of flexibilities that we think are important to solving the kind of problems that you make reference to.

Mrs. UNSOELD. For many local governments, there is a reluctance to try something new. And what I think that I am suggesting is the sort of encouragement through either grants or some other way for local governments to experiment to try innovative technologies. So that they don't simply dismiss them because they haven't ever done them before or looked at them.

Ms. BROWNER. No, we would certainly be very interested in working with you, and I know several of our regional offices have looked at these issues because of problems occurring in the watersheds within those regions. I don't know specifically about the Region 10 office, but we will certainly get them involved.

Mrs. UNSOELD. Could you give me a name or something?

Ms. BROWNER. Yes, we will do that, absolutely.

Mrs. UNSOELD. Thank you very much. Thank you, Mr. Chairman.

The CHAIRMAN. The gentleman from California.

Mr. HAMBURG. Thank you, Mr. Chairman. And I want to join my colleague from Massachusetts, Mr. Torkildsen, in saying that I also look forward to addressing you as Secretary Browner in the very near future.

I want to—I am kind of last on the totem pole here, so most of the questions that I wanted to ask have already thankfully been answered. You mentioned a figure though of $14 billion over 8 years. Is that what the Administration is going to propose for wastewater treatment facilities, and would the funding mechanism under 2199 add an additional 4 billion per year on top of that, is that the way the math works?

Ms. BROWNER. As I understand, the proposal that is made by the Chairman, you are exactly right. It would take the 2 billion that the Administration calls for per year and add to that another source of funds to increase the amount of money that would be available to the states to deal with these problems.

Mr. HAMBURG. In just following up on a question that my colleague from California raised, the amount that is identified in needs survey in the short-term is 137 billion and the long-term 200 billion, and that of course doesn't even include the non-point, so we are really just kind of scratching at the surface here.

Ms. BROWNER. Well, we agree that the problems, the degradation, the impacts to the rivers, the lakes, and the streams of this country are significant, and that we are going to need to be creative in all ways if we are going to develop solutions to these problems, absolutely.

Mr. HAMBURG. Well, in terms of creativity then, following up on what my colleague from Washington said, innovative and alternative programs, it seems to me need to built in and an opening for them, an incentive for those kinds of programs to be developed needs to be built in to every law that we pass, every law that we reauthorize in this area.

And I don't know if you saw yesterday's Wall Street Journal, the front page center article was on the town of Arcada, which is in Humbolt County in the northern part of my district, and featured was a picture of Victor Shaub who is the mayor of Arcada and one of the items they featured in this article was the wastewater treatment facility that the town of Arcada designed and built approximately ten years ago, and this is a marsh system that does their secondary, I am not sure if it is secondary, an estuary treatment, but this is something that has drawn worldwide attention of ministers from around the world come to Arcada, the tiny town of 12,000 to see this wastewater marsh system in operation.

Not only has it saved a lot of money but it has been an incredible educational tool for the university, Humbolt State, which is there, and for other universities and high schools in the area that bring students to the interpretive center which was built there in connection with the wastewater treatment plant, and of course this draws a lot of wildlife and so on and has been a real boom.

So it has made me a real believer in I and A as an approach to solving these problems, and I know that sometimes when you are getting into treating, you know, millions and billions of gallons in a large city, this maybe less real as a possibility than a small town like Arcada. But I would just like to throw out to you that example, and I would urge you to take a look at yesterday's Wall Street Journal, see that article on Arcada and see what, you know, what has happened in one small town to save money and do something that is very good for the environment.

And again, I think that as we pass these laws and reauthorize these laws, we need to build in incentives for new systems and new approaches to solving our wastewater treatment problems.

Ms. BROWNER. I absolutely agree with you and in fact there are several locations across the country where that kind of idea has been used. And in some large metropolitan areas at least a portion of their wastewater is going to a system similar to the one that you describe. Orlando, Florida, has a system like that. They have been incredibly successful providing valuable habitat, dealing not just with the water quality issues that we always focus on when we talk about wastewater treatment facilities, but also quite frankly the quantity issue. So you don't have that slug of treated water coming into a system but rather you have something that resembles a natural sheet flow, more normal flow regime as the water leaves the wastewater treatment facility, comes through a marsh and then onto the receiving waters. They have been very, very successful in many instances.

Mr. HAMBURG. This plant sits on the edge of Arcada Bay which is a very pristine bay. It is actually one of the cleanest estuaries, and I think it may be the estuary in North America that is currently in the best condition. And the water is released from the wastewater into that very pristine bay, and it has worked very, very well for about 15 years now, so I would invite you to just become familiar with that, take a look at the Journal. Thank you.

Ms. BROWNER. Mr. Chairman, if I might just say I think that the flexibilities that we are asking Congress to include in the Clean Water Act Reauthorization are designed to allow communities to do just that. Because as they look at a watershed as a whole and they look at the impacts of a wastewater treatment facility, the other point sources, the non-point sources, they may look to some sort of flow through or filtration marshes in terms of dealing with the problems, cleaning up, improving the water quality again before it hits the receiving body.

The CHAIRMAN. Let the record reflect that was the front page of the Journal that he was recommending that you read, is that correct?

Mr. HAMBURG. Front page.

Ms. BROWNER. Front page, yeah.

The CHAIRMAN. And only the front page. The gentleman from Texas.

Mr. LAUGHLIN. Thank you, Mr. Chairman and Madam Secretary, it is a pleasure having you here. I join my colleague, the gentlewoman from Washington in complimenting you on your pragmatic idealism and very much thank you for all the time you gave me last week. I must tell you first, I thank you and EPA for the guidance you gave the rice farms in my district.

And this comes into the pragmatic idealism that Ms. Unsoeld was talking about. Your agency banned the use of Ferdan and discovered that there was no other product that would allow my rice farmers to continue growing rice without it being wiped out, so you all gave guidance. My farmers followed it for three years and even renewed the use of it under your guidelines, and I thank you because that is pragmatic and it has enabled them to continue producing rice.

I apologize for being late because as I told you the other day I spend all my time dealing with EPA problems. Today I was late because your agency has mandated a 30 percent use of ethanol that impacts some of the clean air problems and we have had a lot of correspondence on that. You will hear more but you are here to talk about clean water and——

Ms. BROWNER. We are always willing to talk about anything that you would like to ask us about however.

Mr. LAUGHLIN. And that is part of the idealism that comes in. You are good about that.

Ms. BROWNER. I don't know if the Chairman is willing to have us.

Mr. LAUGHLIN. We are on my time right now.

Ms. BROWNER. Oh, that is right.

Mr. LAUGHLIN. And you see, I have already covered a lot of the things in addition to everything you listened to last week. The clean water presents a significant problem to those of use that represent large rural areas. For instance, the state capitol in my state of Texas prides itself on its environmental attitude, yet upstream on the Colorado River are some of the purest water in America and some of the best resorts and some of the most expensive golf resorts. Yet below, downstream from the state capitol with a very significant environmental attitude, you enter my district and my constituents can't go fishing, they can't swim in the river, yet after that water goes down stream a number of miles it gets into the rice fields and comes out of the rice fields more pure than it was when it went in.

And so my rice farmers and cotton farmers and agriculture people have a hard time understanding why they are being singled out in many instances to address this non-point source solution that we must have.

And I am wondering how your agency is focusing on this water problem in addition, and I agree we need to look at agriculture and make sure they are using these fertilizers and pesticides and herbicides in the appropriate amounts and reduced amount, but how else are we looking to cure the water pollution problems in the rural areas other than just on the agriculture programs?

Ms. BROWNER. Actually you give, I think, a very good example of that of the Colorado River. It moves through a number of different communities, serves a number of different uses on the many miles that it travels. It is important and the flexibilities that we are asking for in the Clean Water Act to look at that system in its entirety. To recognize what are the needs, what are the purposes that system serves, how do we best manage that watershed for future uses? How do we preserve the quality and the quantity such that future generations will be able to make a living in the way that current generations do or whatever may be appropriate at that time?

These are not the kind of approaches that we have taken historically quite frankly. There has been an attitude particularly when we deal with water resources of somehow or another believing that the water recognizes political boundaries, recognizes that it has crossed from one state into another, that it has crossed from one county into another. Unfortunately, pollution in our natural resources do not recognize political boundaries, and we need to be willing to act accordingly.

When we talk about the non-point source issues and the need to address the impacts of wet weather runoff, the contaminations that occur when we have rain, when we have snow events, we do not speak only of the farmers, we talk about the need to look at the urban centers in terms of what the runoff from those—from individual lawns, from the roads, from the fact that we drive our cars on the roads, what that is contributing to, and how that is contributing to the degradation of the system to look comprehensively at the non-point source impacts.

But if you look at what we have done under the Clean Water Act since it was first passed almost a quarter of a century ago, we have done a lot to deal with the point sources. But quite frankly we haven't had the tools and in sometimes, going back ten or fifteen years ago, we didn't have all of the knowledge to deal with the non-point sources. What we know today is that we need to focus on the non-point sources if we are going to restore and manage our water resources wisely.

Forty percent of our rivers, lakes, and streams today are not acceptable for fishing and swimming. This is 25 years after the Clean Water Act was passed.

Mr. LAUGHLIN. Mr. Chairman, would you indulge me for just a comment? Be very brief. Madam Secretary, I wish that when you look at rural wastewater problems, that you would consider something along the lines of what was done in the '30's as to electrification of rural America.

Our small towns and a lot—I have a lot of unincorporated towns that cannot afford the wastewater treatment that the big cities can do. And I would like to encourage your agency to explore and think along the lines of electrification of American in the '30's and '40's and use the electric co-ops as an example in trying to address those wastewater problems that are just as real in our area as it is in the cities. Thank you very much.

Ms. BROWNER. Mr. Chairman, if I might just briefly respond. In the Clean Water Act proposals that we make to Congress, in fact, we do attempt to address the needs of the very communities that you raise. For example, allowing for a longer payback to the fund. The current law limits payback to 20 years for many small and rural communities. That means they can't participate in the fund.

Negative interest rate loans, again to bring the smaller communities, the rural communities, into the program in a way that quite frankly they haven't been able to before. And we will certainly be more than happy to take a look at what was done under the rural electrification efforts in the '30's to see if perhaps there are some examples that we can build on in terms of the recommendations that we make.

Mr. LAUGHLIN. Well I will be happy to visit with you more because my time has expired, and we are not on my time anymore, so thank you very much. Thank you, Mr. Chairman.

The CHAIRMAN. It is because it takes you so long to say rice.

Mr. LAUGHLIN. We need to be sure they understand what it is.

Ms. BROWNER. We understand what rice is.

Mr. LAUGHLIN. The Japanese are learning this year what it is.

The CHAIRMAN. The distinguished Ranking Member, the gentleman from Texas, Mr. Fields.

Mr. FIELDS. Madam Administrator, I will give you the same accent that my friend from Texas gave you. Since I came in late, if I could I would like to submit questions for the record because I am not aware what has been asked, and I would not want you to have to go through and be repetitious, but suffice it to say that many of us are very interested in this entire range of issues and am certainly hopeful that something this year can be considered and enacted because, you know, we now have a base of information to know what has worked and certainly we are able to see what has not worked. And I guess I am in the position of dealing with the issue in two different areas: one is in this Committee but also being on the Hazardous Waste Subcommittee of the Energy and Commerce Committee.

So I look forward to, you know, working with you, and if you don't mind, I will submit those questions for the record. I think my colleague has one additional question, and I would be glad to yield to my friend if that is appropriate, Mr. Chairman.

Mr. TORKILDSEN. Thank you very much, Madam Administrator. Just a follow-up from our earlier question and answer. Has the EPA completed an economic analysis of the Administration's Clean Water Act initiatives?

Ms. BROWNER. Yes, in fact we have a report which we would be more than happy to make available to all the Members of this Committee. It is a comprehensive analysis of the cost and the benefits of the President's Clean Water initiative.

Mr. TORKILDSEN. That would be very much appreciated. And then a further follow-up, you stated there is a 30 billion dollar savings to communities under Administration proposals. Now, do you have a total dollar cost of all mandates under CWA? Has that been calculated yet?

Ms. BROWNER. Under the current Clean Water Act, in fact, we are going to give you your copy right now. Under the current Clean Water Act, the cost of full implementation of the current law could be $97 billion. Current spending, what is currently being spent across the country by everyone impacted is $64 billion.

The proposals that we make, that the President makes that is included in this package, would cost $70 billion. So, it is a 6 billion dollar increase off of current expenditures, but it is $27 billion less than what is required under the current law.

Mr. TORKILDSEN. OK. I thank you for both the analysis and that number. I will just let you know that number is substantially lower than a lot of numbers I have been told privately, and if we can at least agree on what the actual cost is, then I think we are going to have a much better chance of dealing with the problem.

Ms. BROWNER. Lower in terms of the savings?

Mr. TORKILDSEN. Lower in terms of what the total costs of CWA mandates are because the numbers that I have seen have been substantially greater in the ball park of 140 billion for total mandated costs, so if you come up with a figure of 97 billion, that may be——

Ms. BROWNER. The confusion may deal with some of the numbers for example in the need study they look over a period of time. The numbers that I just gave you are on an annual basis.

Mr. TORKILDSEN. On an annual basis, OK. Thank you and I would be happy to yield back whatever time may be remaining.

The CHAIRMAN. Thank the gentleman, and again we thank the Secretary-to-be. We were trying to get you out of here by 11:00. We came very, very close. We appreciate your time. We look forward to working with you, and I think particularly this Committee will want to have a voice in structuring that study so it is both broader and more expeditious.

Ms. BROWNER. Thank you, Mr. Chairman. And again, we really appreciate your leadership on this issue, your willingness to look at the difficulties associated with creating the funding for the problems that we see across the country, and we want to work with you and the other Members of this Committee to secure language in the Clean Water Act Reauthorization to allow us to do the kind of study and analysis that I think we both agree is essential.

The CHAIRMAN. And let the record reflect as you know that the initiatives and the efforts by this Committee to ferret out alternative sources of funding did not begin this year or last, it has been going on for four or five years. Thank you very much.

Ms. BROWNER. Thank you.

The CHAIRMAN. Wil the next panel wend their way forward as quickly as possible. We would appreciate it. Before we begin, as you can see we have relocated some of our Members. If there are people in the audience who have been unable to find a seat, particularly anyone who has to write, please feel free to fill in on this lower level here. Don't worry about the name in front of you. But do so promptly if you will. We do this often. Please feel free to take a seat.

Dealing with our second panel and what we are going to do is take you in the order in which you appear on the witness list and ask you again, as I think you have already been requested by the staff, to confine your written—excuse me, your oral presentation to no more than five minutes. Your written presentations will appear in their entirety in the record. And I think by now you have had a chance to see the brutality of our light system there. The yellow light indicates that you have one minute remaining, and the red light indicates that you have completed your testimony.

So if we can get some order in the room we will begin with Mr. Billy Turner of the Water Environment Federation. Mr. Turner.

STATEMENT OF BILLY G. TURNER, WATER ENVIRONMENT FEDERATION

Mr. TURNER. Thank you. Mr. Chairman and Members of the Committee, I am Billy Turner, President of the Columbus Water Works, the water, wastewater and combined sewer overflow control utility of the consolidated government of Columbus, Georgia.

I appear before you today on behalf of the Water Environment Federation, an international organization of professionals dedicated to improving water quality.

The benefits derived from supporting wastewater infrastructure have been well-documented. Efforts by the Federal, state and local governments, as well the private sector, have brought about significant improvements in the nation's water quality during the past 20 years.

Clean Water Act requirements, however, are increasing at a time when Federal financial assistance is decreasing. Reauthorization of the Clean Water Act which includes continued Federal financial assistance is needed if it is not to join the ranks of other unfunded mandates imposed on local governments.

The experience of publicly owned treatment works, or POTW's, since the passage of requirements under the 1987 Clean Water Act amendments can be illustrated in three ways:

The first is a major increase in clean water requirements on local governments which frequently result in construction of new, sophisticated and expensive treatment facilities. These requirements included, at a minimum, technology-based secondary treatment levels, as well as development and implementation of local limits to protect water quality.

We are only now implementing many of the 1987 amendments for these programs such as combined sewer overflow and stormwater permitting, while Congress is considering further requirements as part of the Clean Water Act Reauthorization.

The second illustration is a major increase in future municipal wastewater treatment construction. EPA's 1992 Needs Survey reports $146 billion in unmet needs, an increase of $35 billion since the last Needs Survey in 1990.

A significant change in the 1992 Needs Survey is an estimate for the CSO control needs. EPA identified costs associated with controlling CSOs increased from $20 billion in 1990 to $42 billion in 1992. And others would estimate CSO control needs at much higher levels.

It should be noted that these are only needs as reflected in facility plans prepared to meet current CWA requirements. Other construction needs exist. In particular, significant funding will soon be needed to rehabilitate and replace existing municipal water treatment facilities and infrastructure.

A recent survey by the Association of Metropolitan Sewerage Agencies of 106 of its POTW members revealed that over 90 percent of wastewater treatment facility constructions costs are being paid by local governments through direct local financing or loan repayments to the SRF.

According to this survey, only about seven percent of the wastewater treatment needs are being addressed by the state revolving loan fund. AMSA has further reported that local sewer user fees are doubling every six years.

The third illustration is a major increase in demand for improved science and technology. Local experience in water quality standard setting and permitting activities dramatizes the need to expand financial resources for improved science to ensure sound, risk-based regulatory decisions and the improved technology needed to implement those decisions.

Better science will likely determine the success of any new watershed based program.

One key aspect of this support for innovative and alternative treatment technologies is the absence of Federal assistance. The POTW community has only been able to make limited investments in treatment technology, research, and demonstration studies through organizations such as the Water Environment Research Foundation.

For instance, if limited Federal support is available, the Columbus Water Works is preparing to conduct full-scale tests on an enhanced CSO control process. The resulting data and information will provide a greater benefit, perhaps several billion dollars in savings, to other CSO communities as they plan and design CSO facilities.

Increased Federal support would make a significant contribution to technology development. There is increasing recognition that additional resources are needed to renew the national clean water commitment.

With constraints on the Federal general fund by a variety of physical limitations, Congressional consideration of alternative funding sources is critical to moving this program forward.

Congress should examine or reexamine all funding mechanisms. H.R. 2199 brings an important dimension to the clean water debate and you are to be commended, Mr. Chairman, for your efforts. Alternative revenue provisions including a dedicated revenue approach for wastewater infrastructure should be considered by Congress as part of CWA Reauthorization efforts.

Now that the Clinton Administration's initial clean water proposals have been issued, it is time for the White House to join with you and others in evaluating funding and alternative revenue sources.

The Water Environment Federation recommends that Congress and the Administration convene a forum or workshop on clean water funding and revenue alternatives this spring while Clean Water Act Reauthorization is receiving high public and Congressional attention. The purpose of such a workshop would be to bring all parties to the table to identify and reach consensus on funding and revenue options.

Achieving consensus on how to ensure continued assistance would provide the framework for stable, predictable and adequate long-term funding to help protect and improve our nation's waters.

The workshop approach would be similar to the negotiated rulemaking process that proved successful in developing EPA's CSO control policy by bringing a range of interests together to develop a consensus.

WEF would be pleased to assist a Congressional or Administration initiative to organize and conduct such a workshop.

This completes the Federation's formal statement. I would be pleased to respond to your questions. Thank you.

[Statement of Billy G. Turner may be found at end of hearing.]

The CHAIRMAN. Thank you very much, sir. Next, Mr. Sean Crimmins of the Chemical Manufacturers Association. Mr. Crimmins.

STATEMENT OF MR. SEAN CRIMMINS, CHEMICAL MANUFACTURERS ASSOCIATION

Mr. CRIMMINS. Mr. Chairman, I am Sean T. Crimmins, Vice-President and General Tax Counsel of Ashland Oil appearing on behalf of the Chemical Manufacturers Association (CMA). I request our written statement be included in the hearing record and will summarize my remarks.

CMA is a nonprofit trade association. Our member companies represent more than 90 percent of the productive capacity for basic industrial chemicals in the United States. In 1993 the U.S. chemical industry was the nation's largest exporter, and, today, the industry provides 1.1 million high-wage, high-tech jobs for American workers. Last year our industry had record exports of $45.1 billion and a trade surplus of $16.4 billion.

CMA opposes H.R. 2199 for several reasons. First, the proposed excise taxes unfairly target the chemical industry. Second, these taxes will damage the international competitiveness of U.S.-based manufacturing and agriculture. Finally, this bill does not recognize the cumulative impact of environmental taxes and compliance costs on American industry.

The taxes proposed in H.R. 2199 unfairly target the U.S. chemical industry which has already spent billions of dollars to reduce the impact of manufacturing operations on water quality. The chemical industry is already spending almost $2 billion annually to control water pollution. These expenditures are achieving dramatic results.

The proposed taxes would damage all U.S. industry and especially the chemical industry. Our industry's added costs could reach $1.85 billion annually and could produce a direct loss of 3,000 high-wage jobs.

U.S. tax changes must not be viewed in isolation. Raising U.S. taxes only increases the tax burden of U.S. exports and world markets and corresponding advantage of imported products in the United States.

We do not simply oppose new taxes, we oppose taxes that harm the international competitiveness of U.S.-based manufacturers and endanger the American jobs they provide.

Using taxes to achieve environmental objectives is both ineffective and inefficient. At best, the new excise taxes in H.R. 2199 will only subsidize imports, penalize exports and add to the U.S. trade deficit.

These taxes are unfair because they provide double and even triple taxation. In many cases, intake water used by our industry for cooling purposes has no contact with manufacturing process. These intake waters often contain naturally occurring contamination that the bill would tax. H.R. 2199 taxes this use of water twice. First on intake and then again on discharge.

Moreover, if a taxpayer manufactures pesticides, fertilizer and animal feed, the bill taxes these manufacturers a third time.

The chemical industry has an outstanding record in improving water quality over the past 20 years. We are proud of this record of achievement. Based on data reported in EPA's Toxic Release Inventory, the chemical industry alone has reduced its discharges of toxics to surface waters by 77 percent between 1987 and 1991. Moreover, EPA's 1990 Water Quality Inventory found that all U.S. industry was a source of pollution—polluting less then ten percent of U.S.-impaired waters.

The chemical industry, both large and small companies, now pays $4.9 billion annually for pollution abatement and control. During the 1990's these costs are expected to double. This can only reduce our industry's ability to expand production, international trade, and American jobs.

In addition, the chemical industry pays well over $300 million each year in Superfund taxes. The new taxes of H.R. 2199 would increase our environmental tax burden by six times that amount. This added tax burden threatens the ability of our industry and other manufacturers to compete with foreign-based production.

These taxes would also produce major cost increases for other industries like agriculture and electric utilities that would have immediate impact on consumer prices.

In conclusion, over the past two decades CMA has actively participated in developing effective and efficient national programs to improve the environment. Our member companies have invested billions over that period to implement improvements in water quality.

When Congress proposes new taxes to improve the environment, these taxes must also be judged on their impact on our national revenue, trade and competitiveness policies. These taxes invariably deplete industry funds and damage the international competitiveness of U.S.-based enterprises.

We therefore urge that you reject the taxes proposed in H.R. 2199. Thank you, Mr. Chairman.

[Statement of Mr. Turner may be found at end of hearing.]

The CHAIRMAN. Thank you. Next, Ms. Dawn Martin of the American Oceans Campaign. Ms. Martin.

STATEMENT OF DAWN MARTIN, AMERICAN OCEANS CAMPAIGN

Ms. MARTIN. Good morning. My name is Dawn Martin, and I am the Director of the Washington office for the American Oceans Campaign. On its behalf and that of Friends of the Earth and the U.S. Public Interest Research Group, I wish to express my thanks to Chairman Studds and to the other Members of the Committee for inviting us to testify on H.R. 2199. (List of supporting groups may be found at end of hearing.)

As Administrative Browner indicated, public opinion polls have consistently shown that people are deeply concerned about the environment. They also recognize and accept the high price tags associated with increasing protections, and the severe environmental, social and long-term economic costs of delaying or not legislating these protections.

By a strong 95 percent majority, a Harris Poll indicated that people opted for losing jobs, closing factories and companies losing money in order to clean up environmental pollution which might be dangerous to human health.

We give credit to Chairman Studds and his staff for recognizing the current figure of approximately $2 billion a year appropriated for clean water programs is simply not adequate. We must begin to identify additional revenue sources to address the serious problems with the water infrastructure of this country.

Research indicates that even extremely low, sublethal levels of toxic pollutants can now be shown to cause a wide range of health effects to fish and wildlife. Yet pollutants that are persistent and bioaccumulative continue to be released into our aquatic environment in levels that are toxic to aquatic species, to birds, mammals and other predators that consume contaminated fish.

The 1990 Water Quality Inventory indicated that 60 percent of impaired river miles are polluted from agricultural sources, while the next biggest source, municipal sewage plant discharges, contributed to only 16 percent of impaired river miles.

Pesticide use pollutes both surface water and groundwater and is linked to significant fish kills. Pesticides and herbicides have also been shown to affect our drinking water. One such study found that more than half of the midwestern water sites examined, exceeded the atrazine drinking water standard, and one-third exceeded the alachlor drinking water standard.

Fertilizer distribution is also a significant contributor to water pollution. Phosphorus in high levels is acutely toxic to fish and in lower levels, it over-enriches water bodies, causing them to fill up with algae. Nitrogen is both a human health and a livestock health concern, and also contributes to eutrophication.

The question we face today is how do we allocate dwindling financial resources to address these problems. We must find new ways to augment funding of government programs in the era of fiscal and budgetary constraints. Traditional revenue sources, especially from the Federal Government, are increasingly scarce.

Over the last 20 years, Federal, state and local governments have contributed nearly $75 billion toward sewage treatment construction projects. Over the next 20 years, EPA estimates between $137 and $200 billion in cleanup costs.

A consensus has begun to emerge calling for at least $5 billion per year in the SRF program. This level has been supported by members of the environmental community, the National Governors Association, and a great many Members of Congress.

This 5 million figure has been incorporated into another piece of legislation we strongly support H.R. 1720, the DeLauro-Lowey Water Pollution Control and Estuary Restoration Act. However, the 1994 budget for the SRF demonstrates that we are currently unable to provide even half of this level of funding.

We believe that the Federal Government has the responsibility to look to additional sources of funds to meet these needs. Justice dictates that those causing the problems that the Clean Water Act is intended to address, should be assessed a fee to begin to address those problems. Such a fee would require pollutant sources to internalize pollution control costs that otherwise are imposed on society as a whole. The hope is that while some may prefer to pay the governmental imposed fee and continue to pollute, others may find it cheaper to modify their activities in ways that eliminate or reduce pollution at the source, thus avoiding or minimizing the external costs associated with discharging the wastes they generate.

Such a system has been in place in Germany since 1976. As a result, compliance as well as other water quality factors have improved, and the cost of enforcement has decreased. However, polluter pays concepts must be viewed with extreme caution so as to ensure that we do not begin to develop a system wherein our natural resources are sold off to the highest bidder.

Protection of our nation's waters cannot be bought or sold. Rather, such fees should be tied to permitting costs and expenses associated with cleaning up and protecting these water bodies from further degradation. In addition, the fees must be severe enough to serve as an economic incentive to reduce pollution.

One way to do this is to ensure that the fees be regularly increased on an escalating scale. Other safety nets must also be asserted.

The benefits of a polluter pays approach are many, and they are listed in my written testimony. While supporting the concept contained in this legislation, we have some concerns including the need for greater specificity regarding eligible funding activities, additional incentives to reduce the use and discharge of harmful pollutants, and assurance that the tax on toxic discharges does not promote the shifting of toxic releases to other environmental media.

In order to achieve our goal of pollution prevention it is essential that the list of pollutants subject to the tax is comprehensive and updated on a regular basis.

I have several other comments but to wrap it up because of the red light, let me just say that it appears unlikely that the industrial wastewater discharge fee described here would have a significant impact in the majority of affected industries. The major exception is, of course, the chemical and allied products industries.

In terms of corporate profitability, the estimated fees would generally have a small impact. And to the extent that imposition of fees resulted in changed behavior, substitution of less toxic chemical inputs or processes involving in reduced wastewater discharges, the actual and relative burdens of the fees and charges would be reduced.

Similarly, the tax on fertilizers, pesticides and animal feeds would impose a direct cost on food producers and the fee on water use would most directly affect the electrical utilities at nuclear and fossil fuel-fired power plants.

But it is important to remember that the costs are with us and cannot be ignored. The ultimate question remains, who should and who is best suited to bear those costs? The industries affected by this tax that contribute significantly to the problem of water pollution, or the taxpayers.

We believe that Chairman Studds has taken the first step in an inevitable evolution and we support his efforts.

This concludes our testimony. Thank you for inviting me to present our views on the Polluter Pays Clean Water Funding Act.

[Statement of Ms. Martin may be found at end of hearing.]

The CHAIRMAN. Next, Mr. Clinton Reeder of the National Association of Wheat Growers. Mr. Reeder.

STATEMENT OF CLINTON B. REEDER, NATIONAL ASSOCIATION OF WHEAT GROWERS

Mr. REEDER. Mr. Chairman, Members of the Committee. I appreciate the opportunity to be here before you today and present testimony from the standpoint of the wheat industry.

Again, I would ask also that the full text be entered into the record.

I think rather than going through this verbatim, I am going to hit the high points and hopefully that will provide more information and then we can address additional information and questions if you like.

Our primary conclusion relative to this bill is that it inappropriately addresses the issues that agriculture face. If I understand the numbers right, our impaired watersheds constitute something like 40 percent or less of impaired waterways. That means 60 percent aren't shown to be impaired yet, but the proposed polluter tax affects 100 percent of the materials used.

We don't think that is appropriate in that context.

Secondly, if we are going to keep our investment on the prevention side rather than the treatment side, then it would be very inappropriate to siphon equity out of agriculture and reduce its capacity to establish preventive measures elsewhere in the watershed.

We feel that we really need to keep on the farm the financial capacity to do the prevention jobs that society is asking to be done. We are increasingly burdened with regulation. I am involved in rulemaking right now in Oregon which will mandate impaired watershed management plans for agriculture. They are very costly. And if you siphon away the equity capital of those farms then you are going to reduce our capacity to do the preventive job that needs to be done.

I would like to just quickly run through my additional conclusions. We believe that taxing farm inputs is based on the faulty assumption that because they might pollute they should be taxed as pollutants. I am a licensed commercial pesticide applicator and I accumulate on a regular basis continuing education credits to keep my license current. I handle pesticides and fertilizers with great care.

This tax will not decrease input use. The inelasticity of demand for production inputs is related to their essential role in the production process. It would take a very significant tax to begin to create an incentive to reduce our use of pesticides and especially fertilizers.

There are few if any real feasible alternatives. Many farmers regularly attend alternative technology conferences and one of the questions I always ask is what can I use on a commercial wheat farm. I am almost always told that nothing is available, except at those booths which sell commercial materials that we are already using. There are few, if any, alternative materials that are effective on a commercial basis.

Fertilizers and pesticides improve food safety and quality. If you try to reduce farm or food processor uses by a tax, you are potentially jeopardizing public health.

This tax would significantly add to farmers' cost of production while generating very little benefit. The impact for me as a farmer is basically negative. On a typical wheat farm across the country, I estimate the cost is going to be between a dollar and a dollar fifty an acre, depending upon the material you use, the season, the rainfall and the pests that you have to deal with. My farm is about the size of a typical wheat farm, and the additional cost would range somewhere between $2,000 plus or minus a few dollars. That is the direct tax.

When you add into that formula the pass-through of the tax on the manufacturer of the materials I use, it looks to me like the additional cost potentially could double. To put that into perspective, that is the equivalent of what it costs me to hire a harvest employee. That is equivalent to what the health insurance premium costs are for an employee. It is equivalent to hauling 33,000 bushels from my farm to market.

In conclusion, the Congressional Research Service's recent studies on the sustainability of our industry indicate that we already are not covering the full costs of producing our commodity. A recent Agricultural Research Service study indicates that soon after the year 2000, the economic sustainability of the wheat industry goes negative. Therefore, if you continue to extract through taxation, you not only throw the industry into a deficit situation, but you reduce its ability to finance pollution prevention measures, as well.

We have demonstrated clearly that we can improve our management practices if we have additional technical assistance. Growers have a willingness, a readiness to address pollution prevention, but we do not have the technical assistance and the research necessary to identify the alternatives which give us the flexibility that was cited by the EPA Administrator as an important component of successful nonpoint source programs. Thank you. I would be glad to answer questions later.

[Statement of Mr. Reeder may be found at end of hearing.]

The CHAIRMAN. Thank you, sir. And finally, Mr. David Zwick of the Clean Water Action. Mr. Zwick.

STATEMENT OF DAVID ZWICK, CLEAN WATER ACTION

Mr. ZWICK. Mr. Chairman, I appreciate the opportunity to testify. I am president of Clean Water Action, a grassroots environmental organization with over a million members nationwide.

Clean Water Action was founded over 20 years ago to help people secure clean, safe and affordable waters. At that time we were formed by some concerned fishermen who teamed up with some law school students. I was one of the law school students.

Our first project was to help push for passage of the 1972 Clean Water Act. We have all obviously come a long way since then but the job is far from done.

I am pleased to be able to express Clean Water Action's strong support for H.R. 2199. I am going to summarize my prepared testimony and submit it for the record. I will just make a few remarks here.

I particularly want to commend Chairman Studds and his staff for taking a courageous lead in addressing Clean Water Act funding issues almost everyone else would prefer to ignore or to dismiss as too difficult to resolve.

As one who has been personally involved in debates over clean water for more than 20 years, I want to emphasize four points.

First, the nation's water quality infrastructure is as important a national investment as our highways or our air transportation system. And it deserves similar priority in Federal financing. Millions of jobs depend directly and indirectly on water quality protection and improvement.

In addition, building additional water quality infrastructure is the cheapest job creation investment the Federal Government can make.

Second, it is very premature to declare that point sources, particularly sewage discharges, are no longer a major national problem. The job of cleaning up discharges from factories and sewage systems is at best half done, declarations of victory notwithstanding.

Third, we must develop new water quality policy tools to supplement the Clean Water Act's traditional command-and-control regulatory structure. Regulation will continue to be and should be the backbone of the Act but tools like the polluter pays fees proposed in H.R. 2199 must be used to put market forces to work if we are to make rapid progress in water quality improvement. The Federal Government's regulatory machinery has proven cumbersome, underfunded and slow. It needs a boost and a help.

Fourth, H.R. 2199 takes what could be the Federal Government's first serious step and fastest means of cutting a very serious source of water pollution, agricultural runoff. Even if Congress acts this year to strengthen Section 319 of the Act, the polluter pays fee provisions in H.R. 2199 could have an impact on polluted runoff before EPA or any state could act by regulation.

Back to my first point, the bills recognizes that the nation's water. quality infrastructure plays a critical role in the nation's economy. Years ago, Congress believed that an interstate highway system was critical to the economy, established the highway trust fund. Without those funds and the dedicated revenues, it is unlikely, as we know, that the system would have been completed.

It is time for us to take this step in the field of water quality. Water pollution is a major threat to a number of key American industries. I cite a lot of evidence in my prepared testimony. For example, fishing and related industries account for more than 100 billion of the GNP, provide work for 1.5 million Americans. Water-related recreation supplies similar economic benefits. The costs of cleaning up water are tiny compared to the costs—the huge economic losses—we will face if we don't clean it up and keep it clean.

On my second point, as I said, the job of cleaning up sewage and other point sources is not complete. We have heard estimates from $137 billion all the way up to more than $200 billion for doing the job. At the same time, as we know, local governments must also meet major new requirements of the Safe Drinking Water Act in the 1990's, that EPA failed to implement over the last decade.

Major cities face staggering multi-billion-dollar clean water bills. And the water and sewer bill increases required to meet needs such as these with the current minimal level of financial assistance from the Federal level, are enormous.

As costs for cleanup rise, they create serious environmental justice and fairness problems. Even if some people could afford these costs, it would be a mistake to price an essential life giving commodity out of the range of less affluent Americans.

The responsibility for requirements which cause rate increases like this has become a hot potato, as we know, between government officials at different levels. Some have argued that we should scrap safety standards. This would be a serious mistake. The American people don't want to see those safety standards that are their environmental safety net shredded, but they do believe that others—that those responsible—should pick up the tab.

Local government budgets should not have to absorb these increased costs alone. Strong Federal financial assistance is absolutely necessary.

Finally, on agricultural runoff, as we have heard, runoff causes more water pollution than any other source. It is by far the number one source of water pollution, responsible for two-thirds of all polluted river miles and one-half of all polluted lakes. And we have heard other statistics about that as well.

The total appropriation for Section 319 of the Clean Water Act over the last four years has been a paltry 200 million. That is clearly not enough. EPA estimates that over 8 billion will be needed over the next 20 years to assist states in combating runoff.

H.R. 2199 provides an innovative solution to those interconnected problems. It creates a fund for cleanup, and it gives a market-based incentive to reduce pollution. Both are sorely needed.

Mr. Chairman, I appreciate the opportunity to testify. I have some suggestions about how the bill might be improved which I will submit in writing to you. But overall this bill has many advantages and we strongly endorse it. It will bring cleaner water, more affordable utility bills for consumers, especially the most disadvantaged ones, job creation, and incentives to polluters to reduce their pollution.

And in my experience over past Clean Water Act reauthorizations, when funding is increasing we have been able to strengthen the law. When funding is inadequate, we have had to battle very hard against weakening changes. So I think your approach is bigger than just funding. I think it is about saving and strengthening the whole law.

I thank you for introducing this and we will be pleased to work with the Committee in moving this forward.

[Statement of Mr. Zwick may be found at end of hearing.]

The CHAIRMAN. Thank you very much, sir. Let me just observe that I think in its broadest outlines, the problem we face is, if not simple at least simply defined, we have an enormous national task before us. I believe there is unanimity or near unanimity that it is both an important task and one that we absolutely must do. It is not one of those extras that we can do without if we are in tough times.

We are in tough times and we cannot do without. We must clean the water. And the statutes must be enforced and implemented and in some cases strengthened and expanded.

If in fact that is unanimous or at least a consensus, we then face the next relatively simple question at this level of generality which is how are we going to pay for that.

At the moment, the overwhelming majority of the resources being devoted to implementing this Act are from local ratepayers. That is insupportable. It is an attempt to wring blood from the proverbial stone. There is no way it could be done even if all of us wanted it to be done because the resources do not exist at that level to fund the requirements of this magnitude.

I believe that is also a statement about which there is little argument. Now that we are all agreed, the question is where do we find the resources to do what we all agree we have to do?

Now, let me just assure anybody that may feel assaulted in any way by the proposition before us, whether it is the chemical manufacturers or the Fertilizer Institute, who incidentally were invited to testify but declined. Or the farmers or whomever, that, at least speaking as this author of the bill, I don't see any of you as bad guys wearing black hats. I am simply attempting to address the question I just outlined and it is in its broadest level of generality.

If we have to do this job, how do we pay for it? Now, I have not heard a single voice say that we ought to pay for it by simply raising taxes in the conventional fashion and paying for it from the general revenues. I myself am quite prepared to entertain that proposition but I have not heard it suggested by anyone. Not by the Administration, not by a Member of Congress on either side of the aisle, not by any public witness that I know of, given the deficit situation that we find ourselves in, given the consensus that we need to tame that deficit and to continue the effort to reduce it. And we are therefore on as the so-called pay-as-you-go basis. We are not allowed these days by the budgetary rules to suggest additional expenditures unless we are prepared to pay for them, either by reducing expenditures elsewhere or by raising revenues to pay for them.

Therefore, it seemed to me self-evident and I think this continues the consensus to which I was referring, that if we cannot use the conventional general revenues, and I don't know anybody who is suggesting where we are going to find $4 billion in the current budget, that we have to look for alternative sources of funding.

I don't know if the consensus stretches that far, but I think it does. At least I haven't heard anybody quarrel with that so far.

By then the next and obvious question is, OK, what additional sources of funding? And obviously anywhere you look there will be people saying not me, not my enterprise, not my industry, not my area, not my concern, that is human, that is expected. And today we have heard the chemical manufacturers and Mr. Reeder speaking on behalf of the wheat farmers, although I must say, Mr. Reeder, I don't want to get into a long lengthy discussion, but I think if I understood you correctly, you misinterpreted the bill. There is no proposed direct tax on you as a farmer in this bill. It is simply on the manufacturer of pesticides and fertilizers. But leave that aside because obviously your main contention remains regardless of the numbers.

Mr. Crimmins, you made the same arguments that I am sure you know your association made 14 years ago when we did Superfund, you said that would impede the ability of your industry to compete in the export market. But I notice that you are still here and according to your own figures you are doing very well, particularly in that market. Obviously no industry wants for very self-evident reasons, a tax.

But the fact of the matter is, I think, correct me if I am wrong, but although you have done a superb job, you collectively in your industry in terms of removing stuff you had been putting in the water, you still do put a lot of stuff in the water. And you apply regularly for permits to do that, do you not?

Mr. CRIMMINS. I believe that is correct.

The CHAIRMAN. Right. And what do you pay for those permits?

Mr. CRIMMINS. Our payment is according to what the state charges.

The CHAIRMAN. Right, but there is no Federal charge on those permits, right? They are granted by the EPA, are they not?

Mr. CRIMMINS. I believe the charges are at the state level, Mr. Chairman.

The CHAIRMAN. Right. There is no Federal charge whatever for putting whatever it is that your or any other industry puts into the water, is there?

Mr. CRIMMINS. Not to my knowledge.

The CHAIRMAN. OK. So again at this level of generality, I think you will grant me that it isn't illogical at least to look at the principal sources of the pollution we are trying to clean up. One of them is the manufacturers of stuff, if I may be precise, such as your industry puts in the water. One is obviously the product of runoff from pesticides and fertilizers. It seems to be, at least at least at this level of generality, an obvious initial place to look.

Now, if there are reasons why those are not the right places to look, then it seems to me that those of you who suggest that I have the obligation to suggest alternative places to look. We are not overwhelmed with suggestions as to where to raise revenue.

But again, if you are prepared, and tell me if you are not, but if each of us is prepared to accept the broad general assumptions I outlined at the outset, this is a job this country has to be about, we have to accomplish it, it is enormously expensive, it cannot be financed solely by local ratepayers. So we have folks in our part of the world, as my colleague knows, who have to consult a financial analyst before flushing their toilet. This cannot go on this way.

And we are not alone. The question is where do we go? And this bill, while not purporting at all to be a panacea or to be the final or even the next to last or next to next last word, is an effort to get this debate moving. And we have been at this for four or five years now and I keep saying to people, if you have a better idea or better alternative sources, tell us. But if not, what do we do? How do we go about this chore? We cannot simply throw words at it.

It is going to take dollars. It has got to be done. Anyway, that is our challenge. I didn't mean to use up my time with a speech, but if anybody has alternative ideas or thinks that we are looking entirely in the wrong direction, point us in another direction or tell us where the fundamental premises are flawed. Because I think that we, all of us, have an obligation to get about business that the general public damn well knows has to be done.

Feel free to respond. And I have used up my time. Maybe we will come back. My colleague from Massachusetts.

Mr. TORKILDSEN. Thank you, Mr. Chairman, and I concur with much of what you said. I just want to point out something you said in your opening statement that you know, you are not wedded to any specific provision of the bill, and I commend you on your flexibility there.

But we do have to do something and for my personal opinion, I think, you know, we should look at both sides of the equation. I mean if there is something that is an unnecessary cost that is not clearly helping us achieve the goals we want to achieve, then I think we should look at reducing some of the mandates there as well.

You know, we are in a situation where according to the numbers the Administrator just gave out, even with the improvements the Administration is advocating, we are facing a 70 billion dollar annual price tag for the Clean Water Act and yet only 1.6 billion in new moneys for that. Now you can't go on in a situation like that. With virtually no funding for an enormous mandate of that cost. So, either some money has to come from somewhere to pay for it and simply throwing on the backs of cities and towns and saying you have to deal with it, to me is not an answer, or we are going to have to look at the mandates and see which ones really are meeting their purposes, which ones perhaps we can do without while still attaining the objectives of the legislation.

But something has to give in that area, and for anyone on the panel who might have some suggestions, on either side of it, I would be happy to hear them, because I just know we have a major problem in Massachusetts. Communities are faced with enormous mandates under this Act. Granted, in the 1970's they did not receive the then matching funds available because they spent all their time trying to get a waiver. Being coastal communities, those waivers never came. Now they are faced with costs that are staggering. And to give you an example, one community in my district, Glouster, just had to put in sewer—just had to sewer its community. Glouster is built on a rock. So, for every home they were looking at a cost of $20 to $25 thousand just to hook up to this mandated sewer system from EPA. Glouster, not surprisingly, and not for only this reason, has had its unemployment rate of 15, 16 percent for a couple of years now.

When you have water and sewer bills that exceed your tax bills, that is what happens. Businesses say well we can't afford to provide jobs here anymore, they leave, they look for other places to go. You know, we just can't continue this system of unfunded mandates. And I look at it as the Federal Government having the responsibility to find a solution but certainly I am open to suggestions from anyone on the panel, anyone else, how we are going to do this. Because the status quo just will not work. And I just would leave it open to anyone who has any comments on any possible solutions.

The CHAIRMAN. Let me just add before we turn to you for your general responses to these general questions that while none of us have heard any Members of Congress running around town demanding as a general proposition that we raise taxes. I haven't caught yet any of them either suggesting that we repeal the Clean Water Act.

Now, really you have got to do one or the other. Basically. Because there is no way it can be supported in its current form. I think that we got to be honest with ourselves and with the people of this country. I think as we have heard from some of the testimony, every poll, every measure of public opinion we are able to get shows that people value clean water and are willing to pay for it. Literally. People also if you ask them if they want their taxes raised will say no thank you. But we need to face this. Anyone want to respond? Mr. Reeder.

Mr. REEDER. Mr. Chairman, in Oregon in the last legislative session producer groups, cities, and especially small communities worked very diligently through some of the county commissioners' offices on the issue of wellhead protection. Our experience illustrates part of the clean water dilemma.

None of us want the Clean Water Act to be repealed. There are pieces of it we might disagree with, but clean water is a high priority, and I don't think we can disagree with that.

But the issue of how you fund it and how you put together a program to make a practical reality is a real dilemma. And there are two key factors it seems to me. In Oregon our smaller communities are very interested in doing something with their watershed that affects their public water supply, but the problem is that if you volunteer to go into a voluntary program you have to meet all the mandates. And within a very short time line you have to have it financed, funded, completed and operational.

What we tried to achieve was a voluntary program which would allow a community to identify what its particular site specific major priority was given its circumstances and begin to work on that so we could show progress.

But because of the mandates we ended up with nothing. We got zero. The small communities were not allowed to do that. A suggestion for small community projects would be to establish the standards and then make the time line fit the cash generating capacity of the site, you will come much closer to getting more progress faster on a broader base. That applies to me, the farmer. That applies to the urban community as well.

Currently we are siphoning equity out of every entity because our time lines don't match our capacity to generate funds through our businesses, our tax base, or whatever. If we make the time lines fit the economic circumstance of the entity that is asked to comply, then we can do a much better job on a broader base.

The CHAIRMAN. I think I understand you. But I would just observe that if I do, none of us would live to see Boston Harbor cleaned up given the time line that would come into play and the affordability of the project. Nor would the next generation.

Mr. REEDER. I think for some of the huge projects you have a dilemma of a little bit different nature and maybe your solutions need to be different. But if you come up with a universal solution that applies to all communities, and three-fourths of your communities can't comply because it basically is aimed at the Bostons and other large communities, then you have essentially prevented the bulk of the community nationally to make progress. You shouldn't tie up those communities that can make progress just because we haven't found a solution for Boston Harbor.

The CHAIRMAN. Of course not. But the general point remains, I think, that Federal funding, which used to be at the 75 or 80 percent level, is just a small fraction of that now, and where do we make up the difference? Regardless of whether we are talking about a small community or a large project?

Mr. REEDER. To me, the issue is a little different than the household. Nationally, we are overspending our income generating capacity. And taxes like this bill proposes essentially require institutions that are already overspending their cash generating capacity to accelerate their investment.

I think as a nation and as local communities, we simply have to address the issue of clean water relative to other priorities of the community. And the funding issue, no different than a household with limited capacity to increase its funding, is where do you spend a given resource base? And we are not really addressing that very effectively, as we consider new clean water initiatives.

We have got to cut some money someplace. It is not a matter necessarily of a new revenue.

The CHAIRMAN. Anybody else want to take a swat at the general proposition? Yes, sir.

Mr. TURNER. It is a very complex problem, as we all know, and I don't think there is one simple solution. I do agree that the Federal Government must come with more of a part of the pie, and maybe a number like 50 percent would put more focus on what the cost and solutions might be. There would be a more defined look at what the cost and the solutions might be.

An area that the Water Environment Federation has championed is Water Quality 2000, which is an effort that defines the watershed planning program. There may be some solutions that are wrapped around the watershed planning area that say, on a watershed basis, people could better define what the problem is and what the solution might be, and see if some financing could be done on a watershed basis which is a little different direction than has been done in the past.

Now, we need better solutions from innovative alternative technology approaches, so there is a series of things that I think we must do. None of us want to go back to 20, 30 years ago when there was no treatment of wastewater.

The CHAIRMAN. Anybody else?

Mr. CRIMMINS. Mr. Chairman, on the Superfund issue, initially Superfund was not border adjustable and the chemical industry did in fact have a downturn in its exports. As you will recall, in 1983 Superfund was fixed to remedy that problem and our exports then began to increase again.

Under the structure of this bill as it is set up now, it is fairly impossible to border adjust the proposed tax. That is not to say that you couldn't fix the tax, but you are talking about major surgery.

As I understand, the principle here, we will define certain types of pollution behavior that we will determine to be offensive and all of the country's industry will have to pay for that behavior. We can't really measure that behavior accurately, but we will do the best we can and then we will put a tax on it.

As a tax policy person, I don't think taxes should be designed to deal with behavior that you find inconsistent with what you would like in this society. I think the permitting process and the fees that go with it are better designed to deal with what the Government will permit you to do in an industrial application, and then payment will be required if in that industrial application you do some things that the law defines as harmful either to your local environment or to the environment as a whole.

With respect to the overall funding issues that you have in H.R. 2199, this association has in the past, advocated a broad based, invoice credit, value added tax to deal with needed new funding mechanisms, both new programs of the Federal Government. I think most of all agree that this society is already being taxes fairly completely, but every time I come to Washington, all the talk I hear is: "We need more money."

We don't advocate any tax increases. I don't know any business that does. But the extent you really do need money, these are societal problems and a societal tax like the broad based value added tax is, I think, your best answer.

The CHAIRMAN. Well, I would appreciate being lobbied on behalf of any revenue source if you would like to do that. It is not exactly novel. You will be pleased to know we don't have tax jurisdiction, but it is not exactly novel tax policy to enact a tax to either encourage or discourage certain activity. There is ample precedent for that. It may not work but it certainly has been tried often enough.

Mr. CRIMMINS. Yes, our problem is not that this tax hasn't been tried. It is that we find the tax is not very effective on behavior and harmful to competitiveness and American jobs.

The CHAIRMAN. Anyone else before we wrap this up?

Mr. ZWICK. Mr. Chairman?

The CHAIRMAN. Yes, sir?

Mr. ZWICK. We would argue that the economic benefits alone, let alone the aesthetic and health concerns, argue that there should be a higher not a lower priority, placed on pollution control, and that there should be more rather than less money spent. I believe the public supports that, and the polls clearly show that. The problem is figuring out where the money is going to come from.

I believe that this polluter pays approach will ultimately prove to command more public support than any other way to do that. Our direct experience as an organization certainly reinforces that. We are out there talking to millions of people, millions of them who are our members and millions more in the communities that we work in around the country.

We have already worked on polluter pays approaches to various problems at the local level and the state level, and overwhelmingly we find, when we begin to talk to people, that they think this is the right way to raise money for solving environmental problems. It is a very, very popular way to do it when you explain it.

I think that is the challenge and I think this approach addresses that.

The CHAIRMAN. We remain open to alternatives, suggestions, and let me just observe, I think Mr. Zwick you said that one of the things that is at risk here is one of the most fundamental of our environmental statutes. I think public support for this Act is in danger of being seriously eroded if we cannot answer the question we have been wrestling with today. And I think that is something that we would pay dearly for for a very long time to come.

I want to thank you all, my colleague from Massachusetts, and those of you have sat here all morning, we appreciate it. These are very important questions. We don't have the answers, but God help us if we don't find them. The Committee is adjourned.

[Whereupon, at 12:01 p.m., the Full Committee was adjourned; and the following was submitted for the record:]

I

103D CONGRESS
1ST SESSION

H. R. 2199

To amend the Federal Water Pollution Control Act to reauthorize and modify the State water pollution control revolving loan program, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

MAY 20, 1993

Mr. STUDDS (for himself, Ms. FURSE, Ms. SCHENK, Mr. HAMBURG, Mr. HOCHBRUECKNER, Mr. KENNEDY, and Mr. FRANK of Massachusetts) introduced the following bill; which was referred jointly to the Committees on Public Works and Transportation, Merchant Marine and Fisheries, and Ways and Means

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A BILL

To amend the Federal Water Pollution Control Act to reauthorize and modify the State water pollution control revolving loan program, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Polluter Pays Clean Water Funding Act".

SEC. 2. FINDINGS.

Congress makes the following findings:

(1) We are in the midst of a clean water crisis. Across the Nation, water and sewer bills are skyrocketing as the costs of municipal sewage treatment plants and other clean water programs soar. These escalating costs have a disproportionate effect on the poor and on families in small and economically depressed communities.

(2) There is no relief in sight. The most recent report by the Environmental Protection Agency estimates at least $155,000,000,000 will be needed over the next 20 years just to meet current Federal Water Pollution Control Act requirements.

(3) The whole story is even more sobering. If the full costs of Federal Water Pollution Control Act implementation are considered, including combined sewer overflows, storm water control, polluted runoff control, and implementation of national estuary programs, then the total cost of Federal Water Pollution Control Act implementation will greatly exceed $200,000,000,000 over the next 20 years.

(4) We are not now doing enough. In light of these overwhelming needs, the current Federal investment of $2,000,000,000 in State assistance is grossly inadequate to meet the Federal Water Pollution Control Act's fundamental objective of eliminat-

ing discharges and achieving water quality which provides for the protection and propagation of fish, shellfish, and wildlife.

(5) We need to get serious about clean water. In order to ensure adequate investment in clean water infrastructure, an annual investment of $6,000,000,000 is required.

(6) The taxpayer should contribute a fair share. The Federal Government should continue to maintain its $2,000,000,000 in annual support.

(7) The polluter should bear the biggest burden. In order to support the dual objective of deficit reduction and pollution control and prevention, $4,000,000,000 should be derived from appropriate taxes on activities and products which are known to contribute to water pollution.

(8) The mechanism for funding clean water programs should be user friendly. The existing State revolving loan program should remain to be the principal means of financing Federal Water Pollution Control Act implementation at the State level, but the program should be amended to broaden project eligibility, provide for grant-type assistance to small and hardship communities, and help ensure provi-

sion of water and sewer services to all Americans at affordable rates.

TITLE I—STATE WATER POLLUTION CONTROL REVOLVING FUNDS

SEC. 101. REQUIREMENTS FOR TREATMENT WORKS.

(a) APPLICABILITY.—Section 602(b)(6) of the Federal Water Pollution Control Act (33 U.S.C. 1382(b)(6)) is amended by striking each of the following:

(1) "201(b), 201(g)(1), 201(g)(2), 201(g)(3),";

(2) "201(g)(6), 201(n)(1),";

(3) "204(a)(1), 204(a)(2),"; and

(4) "211,".

(b) INCREASE IN VALUE ENGINEERING THRESHOLD.—Section 218(c) of such Act (33 U.S.C. 1298(c)) is amended by striking "$10,000,000" and inserting "$25,000,000".

SEC. 102. PROJECTS ELIGIBLE FOR ASSISTANCE.

(a) IN GENERAL.—Section 603(c) of the Federal Water Pollution Control Act (33 U.S.C. 1383(c)) is amended to read as follows:

"(c) PROJECTS ELIGIBLE FOR ASSISTANCE.—

"(1) DESCRIPTIONS.—The amounts of funds available to each State water pollution control revolving fund shall be used only for providing financial assistance to municipal, intermunicipal, interstate, and State agencies and to other persons, as appropriate, to carry out 1 or more of the following projects:

"(A) Construction of publicly owned treatment works (as defined in section 212).

"(B) Implementation of a management program approved under section 319.

"(C) Development and implementation of a conservation and management plan approved under section 320.

"(D) Implementation of a coastal nonpoint pollution control program developed and approved under section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990.

"(E) Wetlands protection, remediation, and restoration.

"(F) Watershed planning and management.

"(G) Public water conservation and reuse.

"(H) Low income water and sewer assurance programs which meet the requirements of section 608.

"(I) Acquisition of lands, easements, and rights-of-way directly related to any other project described in this paragraph.".

"(2) AVAILABILITY OF FUND BALANCE.—Each State water pollution control revolving fund shall be established, maintained, and credited with repayments and the fund balance shall be available in perpetuity for providing financial assistance under this title.".

(b) CONFORMING AMENDMENTS.—

(1) GENERAL AUTHORITY.—Section 601(a) of such Act (33 U.S.C. 1381(a)) is amended by striking "for providing assistance" and all that follows before the period and inserting "for providing assistance for projects described in section 603(c)".

(2) INTENDED USE PLAN.—Section 606(c)(1) of such Act (33 U.S.C. 1386(c)(1)) is amended by inserting "and other activities eligible for financial assistance under this title" before the semicolon.

SEC. 103. MAXIMUM TERM OF LOANS.

(a) IN GENERAL.—Section 603(d)(1) of the Federal Water Pollution Control Act (33 U.S.C. 1383(d)(1)) is amended—

(1) in subparagraph (A) by striking "20 years" and inserting "the expected life of the facility or

project being financed with the proceeds of the loan"; and

(2) in subparagraph (B) by striking "not later than 20 years after project completion" and inserting "upon the expiration of the term of the loan".

(b) APPLICABILITY.—The amendments made by subsection (a) shall not apply to loans made before the date of the enactment of this Act.

SEC. 104. ADMINISTRATIVE COSTS.

(a) AMOUNT.—Section 603(d)(7) of the Federal Water Pollution Control Act (33 U.S.C. 1383(d)(7)) is amended by striking "except that" and all that follows before the period and inserting "except that in a fiscal year such amount shall not exceed 5 percent of the total amount deposited into such fund in such fiscal year".

(b) TECHNICAL ASSISTANCE.—Section 603 of such Act (33 U.S.C. 1383) is amended by adding at the end the following new subsection:

"(i) USE OF ADMINISTRATIVE FUNDS FOR PROVIDING TECHNICAL ASSISTANCE.—Not less than ⅕ of any amount used by a State in a fiscal year under subsection (d)(7) for administering its water pollution control revolving fund shall be allocated for providing technical assistance to communities to identify appropriate technology for water quality protection and mechanisms for financing water quality protection projects.".

SEC. 105. AUTHORITY TO MAKE GRANTS.

(a) IN GENERAL.—Section 603(d) of the Federal Water Pollution Control Act (33 U.S.C. 1383(d)) is amended—

(1) by striking "and" at the end of paragraph (6);

(2) by striking the period at the end of paragraph (7) and inserting "; and"; and

(3) by adding at the end the following:

"(8) to make grants in such amounts and subject to such terms as provided by subsection (j).".

(b) LIMITATIONS.—Section 603 of such Act (33 U.S.C. 1383) is amended by adding at the end the following new subsection:

"(j) GRANT AUTHORITY.—

"(1) TERMS AND CONDITIONS.—The authority of a State under subsection (d)(8) to provide financial assistance from its water pollution control revolving fund in the form of grants shall be subject to the following terms and conditions:

"(A) LIMITATION ON AMOUNT.—In a fiscal year, such financial assistance will not exceed whichever of the following amounts is greater:

"(i) 25 percent of the funds received by the State in capitalization grants under this title in such fiscal year.

"(ii) 100 percent of any increase in the amount of funds received by the State in capitalization grants under this title in such fiscal year from the amount of funds so received in fiscal year 1992.

"(B) ELIGIBLE PROJECTS.—Such financial assistance will be provided only for the following types of projects:

"(i) PROJECTS IN SMALL COMMUNITIES.—A project described in subsection (c)(1) to be carried out in a political subdivision with a population of 5,000 individuals or less.

"(ii) PROJECTS IN HARDSHIP COMMUNITIES.—A project described in subsection (c)(1) to be carried out in a political subdivision for which the State certifies that—

"(I) in the preceding calendar year, the average combined residential water and sewer bill equaled or exceeded 2 percent of the median family income; or

"(II) in the preceding calendar year, the average residential sewer bill equaled or exceeded 1 percent of the median family income.

"(iii) PROJECTS TO CONTROL NONPOINT POLLUTION.—A project described in subparagraph (B), (C), or (D) of subsection (c)(1) for control of nonpoint sources of pollution.

"(iv) PROJECTS FOR LOW INCOME WATER AND SEWER ASSURANCE.—A project to establish and implement a low income water and sewer assurance program which meets the requirements of section 608 and which is to be carried out in a political subdivision described in clause (i) or (ii).

"(2) POLITICAL SUBDIVISION DEFINED.—For the purposes of this subsection, the term 'political subdivision' shall include Indian tribes.".

SEC. 106. CONTROL OF NONPOINT SOURCE POLLUTION.

Section 603 of the Federal Water Pollution Control Act (33 U.S.C. 1383) is further amended by adding at the end the following new subsection:

"(k) MINIMUM PERCENTAGE TO BE USED FOR NONPOINT SOURCE CONTROL.—Not less than 15 percent of the amount of each capitalization grant received by a State under this title shall be used by the State for projects to control nonpoint sources of pollution which affect surface water or groundwater. Such projects shall include projects described in subparagraphs (B) and (D) of subsection (c)(1) and, as appropriate, portions of projects described in subparagraph (C) of subsection (c)(1).".

SEC. 107. ALLOTMENT OF FUNDS.

(a) FORMULAS.—Section 604(a) of the Federal Water Pollution Control Act (33 U.S.C. 1384(a)) is amended to read as follows:

"(a) FORMULAS.—

"(1) EXISTING FORMULA.—Except as provided by paragraph (2) and subsection (d), sums appropriated to carry out this title in a fiscal year shall be allotted by the Administrator in accordance with section 205(c).

"(2) NEW FORMULA.—

"(A) ESTABLISHMENT.—Not later than 1 year after the date of the enactment of this paragraph, and after providing adequate notice and opportunity for public comment, the Administrator shall develop and publish a formula for the allocation of amounts appropriated to carry out this title after the date of publication of such formula. Such formula shall be based on State populations (as determined using the most recent population estimates prepared by the Secretary of Commerce) and information contained in the most recent biennial needs survey conducted by the Administrator. The Administrator shall revise such formula at least once every 5 years.

"(B) ALLOTMENT UNDER NEW FORMULA.—Subject to subsection (d), funds appropriated to carry out this section for a fiscal year beginning after the date of publication of a formula under subparagraph (A) shall be allotted by the Administrator in accordance with such formula.".

(b) SET-ASIDE.—Section 604 of such Act (33 U.S.C. 1384) is amended by adding at the end the following new subsection:

"(d) SET-ASIDE.—Before allotting amounts under this section, the Administrator shall in each of fiscal years 1994, 1995, and 1996—

"(1) deduct from funds appropriated to carry out this title a sum of not to exceed 0.05 percent of such funds or $10,000,000, whichever amount is less; and

"(2) transfer such sum to the Secretary of Commerce for making grants to States under section 6217(f) of the Coastal Zone Act Reauthorization Amendments of 1990 for the development of coastal nonpoint pollution control programs.".

SEC. 108. LOW INCOME WATER AND SEWER ASSURANCE PROGRAM.

(a) ELIGIBILITY REQUIREMENT.—Section 602(b) of the Federal Water Pollution Control Act (33 U.S.C. 1382(b)) is amended—

(1) by striking "and" at the end of paragraph (9);

(2) by striking the period at the end of paragraph (10) and inserting "; and"; and

(3) by adding at the end the following:

"(11) with respect to any area which has an average annual combined total of residential household water and sewer bills which is greater than 4 percent of 75 percent of the Federal poverty level for a household of 4 (as determined from the most recent Federal Poverty Guidelines published by the Department of Health and Human Services), the State will require as a condition of providing assistance from the fund for a project to construct a publicly owned treatment works, as described in section 603(c)(1)(A), that the recipient of such assistance certify, in writing, that there will be in effect for such area within 2 years after the date of approval of such assistance a low income water and sewer assurance program which meets the requirements of section 608.".

(b) IN GENERAL.—Title VI of such Act (33 U.S.C. 1381–1387) is amended by adding at the end the following:

"SEC. 608. LOW INCOME WATER AND SEWER ASSURANCE PROGRAM.

"(a) IN GENERAL.—Not later than 1 year after the date of the enactment of this Act, the Administrator shall issue regulations to establish minimum standards for low income water and sewer assurance programs eligible for assistance under this Act. Such programs shall be designed to best meet the needs and conditions of the area served by the recipient of assistance under this title. Such regulations shall, at a minimum, ensure that—

"(1) water and sewer will be available on an affordable basis to all households being served by the recipient of assistance under this title having a household income at or below 150 percent of the

Federal poverty level in the area (as determined from the most recent Federal Poverty Guidelines published by the Department of Health and Human Services);

"(2) benefits under the program will be made available to tenants of residential units who pay for water and sewer services as part of their rent;

"(3) the presumptive measure of affordable combined water and sewer rates on a monthly basis is that such rates do not exceed 4 percent of the gross monthly income for a household; and

"(4) benefits under the program may be reduced by any assistance provided to pay utilities under any other Federal or State program.

"(b) TREATMENT OF BENEFITS.—Notwithstanding any other provision of law, the amount of any low income water and sewer assurance program benefits provided pursuant to this Act directly to, or for the benefit of, a household shall not be treated as income to such household for purposes of any Federal law.".

(c) EFFECTIVE DATE.—The amendment made by subsection (a) of this section shall take effect on the first day of the first fiscal year which begins after the last day of the 1-year period beginning on the date of the enactment of this Act.

SEC. 109. AUTHORIZATION OF APPROPRIATIONS.

Section 607 of the Federal Water Pollution Control Act (33 U.S.C. 1387) is amended to read as follows:

"SEC. 607. FUNDING CLEAN WATER NEEDS.

"(a) FROM THE GENERAL FUND.—There is authorized to be appropriated to carry out the purposes of this title $2,000,000,000 per fiscal year for each of fiscal years 1994 through 2000.

"(b) FROM THE CLEAN WATER TRUST FUND.—For each fiscal year after fiscal year 1995, $4,000,000,000 shall be transferred from the Clean Water Trust Fund, without further appropriation, to carry out the purposes of this title.".

TITLE II—EXCISE TAXES ON SUBSTANCES CONTRIBUTING TO WATER POLLUTION, ETC.

SEC. 201. EXCISE TAXES ON SUBSTANCES CONTRIBUTING TO WATER POLLUTION.

(a) IN GENERAL.—Chapter 38 of the Internal Revenue Code of 1986 (relating to environmental taxes) is amended by adding at the end thereof the following new subchapters:

"Subchapter E—Discharges of Chemical Pollutants

"Sec. 4691. Imposition of tax.
"Sec. 4692. Definitions and special rules.

"SEC. 4691. IMPOSITION OF TAX.

"(a) GENERAL RULE.—There is hereby imposed a tax on the discharge in the United States (as defined in section 4612(a)(4)) of any taxable chemical pollutant to—

"(1) water, or

"(2) any publicly owned treatment works (as defined in section 212 of the Federal Water Pollution Control Act).

"(b) RATE OF TAX.—The amount of the tax imposed by subsection (a) on each pound of any taxable chemical pollutant shall be the amount determined in accordance with the following table:

In the case of:	The tax per pound is:
Group 1 pollutants	0.6 cents
Group 2 pollutants	24.2 cents
Group 3 pollutants	$ 2.26
Group 4 pollutants	$28.33
Group 5 pollutants	$63.39.

"(c) LIABILITY FOR TAX.—The person discharging any taxable chemical pollutant shall pay the tax imposed by subsection (a) on such pollutant.

"(d) EXCEPTIONS.—The tax imposed by subsection (a) shall not apply to any discharge of any taxable chemical pollutant used exclusively for—

"(1) any residential use,

"(2) any use on a farm for farming purposes (determined under rules similar to the rules of section 6420(c)), or

"(3) any use by United States, any State or political subdivision thereof, the District of Columbia, any possession of the United States, or by any agency or instrumentality of any of the foregoing.

"(e) INFLATION ADJUSTMENT OF RATES.—

"(1) IN GENERAL.—Effective during any calendar year after 1994, each dollar amount contained in subsection (b) shall be increased by an amount equal to—

"(A) such dollar amount, multiplied by

"(B) the inflation adjustment for such calendar year.

"(2) INFLATION ADJUSTMENT.—For purposes of paragraph (1), the inflation adjustment for any calendar year is the sum of—

"(A) 3 percentage points, plus

"(B) the percentage (if any) by which—

"(i) the GDP deflator for the preceding calendar year, exceeds

"(ii) the GDP deflator for 1993.

"(3) GDP DEFLATOR FOR CALENDAR YEAR.—For purposes of paragraph (2), the GDP deflator for any calendar year is the GDP deflator for the second calendar quarter of such year.

"(4) GDP deflator.—For purposes of paragraph (3), the term 'GDP deflator' means the most recent revision of the implicit price deflator for the gross domestic product as computed and published by the Department of Commerce before November 15 of the calendar year referred to in paragraph (2)(B)(i).

"SEC. 4692. DEFINITIONS AND SPECIAL RULES.

"(a) Taxable Chemical Pollutants.—

"(1) In general.—For purposes of this subchapter, the term 'taxable chemical pollutant' means any substance which, at the time of its discharge, is listed in paragraph (2) as being included in any group of pollutants.

"(2) Groups of pollutants.—For purposes of this paragraph (1), the groups of pollutants are as follows:

Group 1 Pollutants
Oil and grease
BOD-5
TSS
Diethyl phthalate
Dichloropropane, 1,2
Chlorobenzene
Chloroethyl vinyl ether, 2
Dichloroethane, 1,1

Group 2 Pollutants
Vinyl chloride
Ethylbenzene
Dichloroethane, 1,2
Nitrophenol, 2
Dimethyl phthalate
Antimony
Dimethylphenol, 2,4

Dinitrotoluene, 2,6
Dichlorobenzene, 1,3
Phenol
Toluene
Naphthalene
Dichlorobenzene, 1,8-
Dinitrotoluene, 2,6-
1,1 dichloroethylene
Chlorophenol, 2-
Bis-2 chloroisopropyl ether
Isophorone

Group 3 Pollutants

2,4-D (Acetic acid (2,4 Dichlorophenoxy-acetic acid))
Nitrobenzene
Bis(2-chloro-1-methyl-ethyl)ether
Nitrophenol,4
Trichloroethane, 1,1,2
Vinylidene chloride
Butyl benzyl phthalate
Chloromethane (Methyl chloride)
Dichloromethane
Bromoform (Tribromomethane)
Chloroform
Zinc
Tetrachlorethane, 1,1,2,2
Dinitrotoluene, 2,4
Acetaldehyde
Acetone
Acetonitrile
Acrylamide
Acrylic acid
Allyl Chloride
Aluminum
Ammonia
Ammonium nitrate
Ammonium sulfate
Aniline
Anisidine, o
Barium
Benzoyl chloride
Benzoyl peroxide
Benzyl chloride
Biphenyl (Diphenyl)
Bis(2-ethylhexyl)-adipate
Butadiene, 1,3
Butyl acrylate
Butyl alcohol, n
Butyl alcohol, sec
Butyl alcohol, tert
Butylene oxide, 1,2
Butyraldehyde
Carbaryl
Carbon Disulfide
Catechol (1,2-Dihydroxybenzene)

Chlorinated fluorocarbons
Chlorine
Chlorine dioxide
Chloroacetic acid
Chloroprene
Chlorothalonil
Cobalt
Cresidine, p
Cresol, m
Cresol, o
Cresol, p
Cresol (mixed isomers)
Cumene
Cumene hydroperoxide
Cupferron
Cyclohexane
C.I. basic green 4
C.I. disperse yellow 3
Decabromodiphenyl oxide
Diaminodiphenyl-ether, 4,4
Diaminotoluene, 2,4
Diaminotoluene (mixed isomers)
Dibenzofuran
Dibromoethane, 1,2
Dichlorobenzene (mixed isomers)
Diethanolamine
Dimethyl sulfate
Dioxane, 1,4
Epichlorohydrin
Ethoxyethanol, 2
Ethyl acrylate
Ethylene glycol
Ethylene oxide
Formaldehyde
Freon 113
Hydrazine
Hydrochloric acid
Hydrogen cyanide
Hydrogen fluoride
Hydroquinone
Isobutyraldehyde
Isopropyl alcohol
Isopropylidenedi-phenol, 4,4
Maleic anhydride
Manganese
Methanol
Methoxyethanol, 2
Methyl acrylate
Methyl hydrazine
Methyl iodide
Methyl methacrylate
Methyl tertbutyl ether
Molybdenum trioxide
Naphthylamine, alpha
Nitric acid

Nitrilotriacetic acid
Nitroglycerin
Nitropropane, 2
Peracetic acid
Phenylenediamine, P
Phenylphenol, 2
Phosgene
Phosphoric acid
Phosphorous (yellow or white)
Phthalic anhydride
Picric acid (2,4,6-trinitro-phenol)
Propionaldehyde
Propylene oxide
Propylene (propene)
Pyridine
Quinoline
Styrene
Sulfuric acid
Terephthalic acid
Thiourea
Toluene 2,4-diisocyanate
Toluidine, o
Trichlorofon
Trimethylbenzene, 1,2,4
Urethane (Ethyl carbamate)
Vanadium
Vinyl acetate
Xylene, m
Xylene, o
Xylene, p
Xylidine, 2,6
Hexachloroethane
Trichlorobenzene, 1,2,4
Dichlorophenol, 2,4
Carbon tetrachloride
Trichloroethane, 1,1,1 (Methyl chloroform)
Trichloroethylene
Nitrosodiphenylamine-N
Dichlorobenzene, 1,4-
Chloroethane
Acetamide
Anisidine, P
Asbestos
Benzamide
Carbonyl sulfide
Chlorophenols
C.I. solvent yellow
Diaminoanisole, 2,4
Diaminoanisole sulfate, 2,4
Dicholoethylene, 1,2
Dichlorvos
Diethyl sulfate
Dimethoxybenzidine, 3,3
Dimethyl hydrazine, 1,1
Ethylene

Ethylene thiourea
Fluometuron
Glycol ethers
Methylene bromide
Methylenabis (phenylisocyanate)
Nitro-o-anisidine, 5
Parathion
Propyleneimine (2-methyl aziridine)
Quinone
Styrene oxide
Thorium dioxide
Toluene2,6diisocyanate
Vinyl bromide
Bromomethane
Chlorodibromomethane
Nitrosodi-n-propylamine-n
Dichlorobromomethane
Bis-2 chloroethoxy methane
Chloro-3-methylphenol, 4-
Chlorophenylphenyl ether, 4-
Dinitro-2-methylphenol, 4,6
Nitrosodimethylamine N

Group 4 Pollutants

Di-n-butyl phthalate
Dinitrophenol, 2,4
Maneb
Bis(2-chloroethyl)-ether
Copper
Hexachloro1,3-butadiene
Acrylonitrile
Benzene
Chromium
Dichlorobenzene, 1,2
Dimethylaniline,n,n
Methyl ethyl ketone
Methyl isobutyl ketone
Methylenedianiline, 4,4
Nickel
Tetrachloroethylene, 1,1,2,2
Xylene (mixed isomers)
Acrolein
Dicofol
Thallium
Chloroform
Acrylonitrile
Acenaphthene
Acenapthylene
Chloronaphthalene, 2-
Chrysene
Dichloroethylene
Fluorene
Fluoranthene
Hexachlorocyclohexane delta
Ideno (1,2,3-cd) pyrene

Di-N-butyl phthalate
Pyrene
2,3,7,8-TCDF
Alkylated lead
Danitol
EBDC fungicides
Kelthane
Kepone
Mirex
N-nitroso-di-n-butylamine
Octachlorostyrene
Pentachlorobenzene
Perylene
PCDD/Fs
Soy products
Styrene dimers and trimers
Synthetic pyrethroids
Technical-grade BHC (hexachlorocyclohexane)
Tetrachlorobenzene, 1,2,3,5-
Trazine herbicides
Tributyltin

Group 5 Pollutants

Hexachlorocyclopentadiene
Selenium
Dichloropropylene, 1,3
Tetrachlorvinphos
Dinitro-o-cresol, 4,6
Lead
Dioctyl phthalate, n
Trichlorophenol, 2,4,6
Di(2-ethylhexyl) phthalate
Trifluralin
Cadmium
Beryllium
Dichlorobenzidine, 3,3
Arsenic
Silver
Methoxychlor
Mercury
Hexachlorobenzene
Chlordane
Heptachlor
Polychlorinated biphenyls
Anthracene
Pentachlorophenol
Lindane
Aldrin
Benzidine
Diphenylhydrazine, 1,2-
Hexachorocyclopentadiene
1,2 benzanthracene
Benzo(a)pyrene
8,4 benzofluoranthene
Benzo(k)fluoranthene

Cyanide
DDT
DDE
DDD
Dibenzo(a,h)anthracene
Dieldrin
Dioxin
Endosulfan alpha
Endosulfan beta
Endrin
Endrin aldehyde
Heptachlor epoxide
Hexachlorocyclohexane alpha
Hexachlorocyclohexane beta
Phenanthrene
Bis (2 ethyl hexyl) phthalate
Toxaphene
Ethylene dibromide
EPN (ethyl-p-nitrophenylphenylphosphorothioate)
Hexachlorophene
Captan
Propoxur
Quintozene (pentachloronitrobenzene)

"(b) SPECIAL RULES.—

"(1) FRACTIONAL PARTS OF A POUND.—In the case of a fraction of a pound, the tax imposed by this subchapter shall be the same fraction of the amount of such tax imposed on a whole pound.

"(2) DISPOSITIONS OF REVENUES FROM PUERTO RICO AND THE VIRGIN ISLANDS.—The provisions of subsections (a)(3) and (b)(3) of section 7652 shall not apply to any tax imposed by this subchapter.

"Subchapter F—Fertilizer, Pesticides, and Animal Feed

"Sec. 4694. Imposition of tax.
"Sec. 4695. Definitions and special rules.

"SEC. 4694. IMPOSITION OF TAX.

"(a) GENERAL RULE.—There is hereby imposed a tax on any fertilizer, pesticide, or animal feed—

"(1) which is manufactured or produced in the United States or entered into the United States for consumption use or warehousing, and

"(2) which sold or used by the manufacturer, producer, or importer thereof.

"(b) AMOUNT OF TAX.—The amount of the tax imposed by subsection (a) is—

"(1) in the case of fertilizer, 0.845 cents per pound of the nitrogen and phosphorous in such fertilizer,

"(2) in the case of pesticide, 24.27 cents per pound of the active ingredient in such pesticide, and

"(3) in the case of processed animal feed, $2.68 cents per ton.

"SEC. 4695. DEFINITIONS AND SPECIAL RULES.

"(a) DEFINITIONS.—For purposes of this subchapter—

"(1) PESTICIDE AND ACTIVE INGREDIENT.—The terms 'pesticide' and 'active ingredient' have the meanings given such terms by section 2 of the Federal Insecticide, Fungicide, and Rodenticide Act.

"(2) PROCESSED ANIMAL FEED.—The term 'processed animal feed' means any agricultural or horticultural commodity—

"(A) which is intended to be consumed by livestock, birds, fur-bearing animals, fish, or wildlife, and

"(B) to which some form of processing has been applied.

For purposes of subparagraph (B), the term 'processing' does not include handling, packing, grading, or storing.

"(3) FERTILIZER.—The term 'fertilizer' shall not include manure or sewage sludge.

"(b) EXCEPTION FOR EXPORTS.—

"(1) IN GENERAL.—The tax imposed by section 4694 shall not apply to any article—

"(A) which is exported from the United States by the person otherwise liable for such tax, or

"(B) which is to be sold for export from the United States by the purchaser or by any subsequent purchaser.

"(2) CREDIT OR REFUND WHERE PRIOR TAX IMPOSED.—

"(A) IN GENERAL.—Except as provided in subparagraph (B), if tax was imposed under section 4694 with respect to any article and such article is exported by any person, credit or refund (without interest) of such tax shall be allowed or made to the person who paid such tax.

"(B) CONDITION OF ALLOWANCE.—No credit or refund shall be allowed or made under subparagraph (A) unless the person who paid the tax establishes that—

"(i) he has repaid or agreed to repay the amount of the tax to the person who exported the article, or

"(ii) he has obtained the written consent of such exporter to the allowance of the credit or the making of the refund.

"(C) REFUNDS DIRECTLY TO EXPORTER.—Rules similar to the rules of section 4662(e)(3) shall apply to the tax imposed by section 4694.

"(c) EXCEPTION FOR FURTHER MANUFACTURE.—Rules similar to the rules of section 4682(d)(2) shall apply for purposes of this subchapter.

"(d) OTHER DEFINITIONS.—For purposes of this subchapter—

"(1) UNITED STATES.—The term 'United States' has the meaning given such term by section 4612(a)(4).

"(2) IMPORTER.—The term 'importer' means the person entering the article for consumption, use, or warehousing.

"(3) TON.—The term 'ton' means 2,000 pounds.

"(e) SPECIAL RULES.—

"(1) FRACTIONAL PARTS OF A POUND OR TON.—In the case of a fraction of a pound or ton, the tax imposed by this subchapter shall be the same faction of the amount of such tax imposed on a whole pound or ton.

"(2) DISPOSITIONS OF REVENUES FROM PUERTO RICO AND THE VIRGIN ISLANDS.—The provisions of subsections (a)(3) and (b)(3) of section 7652 shall not apply to any tax imposed by this subchapter."

(b) CLERICAL AMENDMENT.—The table of subchapters for chapter 38 of such Code is amended by adding at the end thereof the following new items:

"Subchapter E. Certain chemical pollutants.
"Subchapter F. Fertilizer, pesticides, and animal feed."

(c) EFFECTIVE DATE.—The amendments made by this section shall take effect on January 1, 1994.

SEC. 202. EXCISE TAX ON COMMERCIAL AND INDUSTRIAL WATER USE.

(a) IN GENERAL.—Chapter 36 of the Internal Revenue Code of 1986 (relating to certain other excise taxes) is amended by inserting after subchapter B the following new subchapter:

"Subchapter C. Certain Nonresidential Uses of Water

"Sec. 4476. Imposition of tax.
"Sec. 4477. Definitions and special rules.

"SEC. 4476. IMPOSITION OF TAX.

"(a) IN GENERAL.—There is hereby imposed a tax of 1.95 cents on each thousand gallons of water sold for use or used by the ultimate consumer in a taxable use.

"(b) LIABILITY FOR TAX.—

"(1) IN GENERAL.—The tax imposed by this section shall be paid by the person using the water in a taxable use.

"(2) COLLECTION OF TAX BY UTILITIES.—In the case of water which is sold to the person required to pay the tax imposed by this section by a water utility, such utility shall collect such tax from such person and remit it to the Secretary.

"SEC. 4477. DEFINITIONS AND SPECIAL RULES.

"(a) TAXABLE USE.—For purposes of this subchapter—

"(1) IN GENERAL.—The term 'taxable use' means any use of water in the United States (as defined in section 4612(a)(4)) other than—

"(A) any residential use,

"(B) any use on a farm for farming purposes (determined under rules similar to the rules of section 6420(c)),

"(C) any use at a hydroelectric generating facility in the generation of electricity,

"(D) any use by United States, any State or political subdivision thereof, the District of Columbia, any possession of the United States, or by any agency or instrumentality of any of the foregoing.

"(b) WATER UTILITY.—For purposes of this subchapter, water shall be treated as sold to any person by a water utility if such water is sold by—

"(1) any governmental unit, or

"(2) any person engaged in the trade or business of furnishing water if the rates for the furnishing or sale of the water have been established or approved by a State or political subdivision thereof, by an agency or instrumentality of the United States, or by a public service or public utility commission or other similar body of a State or political subdivision.

"(c) FRACTIONAL PARTS.—In the case of a fraction of 1,000 gallons, the tax imposed by this subchapter shall be the same faction of the amount of such tax imposed on 1,000 gallons.

"(d) DISPOSITIONS OF REVENUES FROM PUERTO RICO AND THE VIRGIN ISLANDS.—The provisions of subsections (a)(3) and (b)(3) of section 7652 shall not apply to any tax imposed by this subchapter."

(b) CLERICAL AMENDMENT.—The table of subchapters for chapter 36 of such Code is amended by inserting after the item relating to subchapter B the following new item:

"Subchapter C. Certain nonresidential uses of water."

(c) EFFECTIVE DATE.—The amendments made by this section shall take effect on January 1, 1994.

SEC. 203. CLEAN WATER TRUST FUND.

(a) IN GENERAL.—Subchapter A of chapter 98 of the Internal Revenue Code of 1986 (relating to trust fund code) is amended by adding at the end thereof the following new section:

"SEC. 9512. CLEAN WATER TRUST FUND.

"(a) CREATION OF TRUST FUND.—There is established in the Treasury of the United States a trust fund to be known as the 'Clean Water Trust Fund', consisting of such amounts as may be appropriated or credited to such Trust Fund as provided in this section or section 9602(b).

"(b) TRANSFERS TO TRUST FUND.—

"(1) IN GENERAL.—There are hereby appropriated to the Clean Water Trust Fund amounts equivalent to the net revenues received in the Treasury from the taxes imposed by—

"(A) section 4476 (relating to certain nonresidential uses of water),

"(B) section 4691 (relating to discharges of chemical pollutants), and

"(C) section 4694 (relating to fertilizer, pesticides, and animal feed).

"(2) NET REVENUES.—For purposes of paragraph (1), the term 'net revenues' means the amount estimated by the Secretary based on the excess of—

"(A) the taxes received in the Treasury under sections 4476, 4691, and 4694, over

"(B) the decrease in the tax imposed by chapter 1 resulting from such taxes.

"(c) EXPENDITURES FROM TRUST FUND.—Amounts in the Clean Water Trust Fund shall be available only for purposes of making expenditures to carry out title VI of the Federal Water Pollution Control Act.

(b) CLERICAL AMENDMENT.—The table of sections for such subchapter A is amended by adding at the end thereof the following new item:

"Sec. 9512. Clean Water Trust Fund."

94-229 ENR
March 11, 1994

CRS Report for Congress

Congressional Research Service • The Library of Congress

An Assessment of the Agricultural Impacts of H.R. 2199 [*]

A. Barry Carr
Specialist in Agricultural Policy
Environment and Natural Resources Policy Division

SUMMARY

Title II of H.R. 2199 would amend Chapter 38 of the Internal Revenue Code of 1986 by adding two new subchapters. The first would place an excise tax on the discharge of certain chemical pollutants to water or publicly owned water treatment works. The second would place an excise tax on certain fertilizers, pesticides or animal feeds. It would also amend Chapter 36 to place an excise tax on certain nonresidential uses of water.

BACKGROUND

A tax on the discharge of certain chemical pollutants in waste water would impose additional costs on many manufacturers of agricultural fertilizers and pesticides, as well as some processors of agricultural commodities. These added costs would probably have an indirect impact on the agricultural sector in the form of higher agricultural chemical costs and lower farm commodity revenues. Industry estimates of the costs range between $250 million for the fertilizer industry alone and $1 billion for the fertilizer and pesticide industry together. It is likely that these cost increases would be passed through to the purchasers of fertilizer and pesticides. It is beyond the scope of this analysis to validate the cost increases claimed by the industry or to determine which specific product prices would increase by what amount. Nevertheless, agriculture would almost certainly share in the burden of these price increases in proportion to its share of the market for these products.

A tax on fertilizers, pesticides, and processed animal feeds would impose a direct cost on producers of almost every food and fiber commodity imposed in the United States. These added costs would impact both the net incomes of producers and the expenditures of consumers. This analysis examines the possible impacts of the proposed fertilizer, pesticides and animal feeds excise tax on the cost of producing selected agricultural commodities, on the income of the agricultural sector and on consumer expenditures for food.

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[*] This report was initially prepared at the request of the Subcommittee on Environment and Natural Resources of the House Committee on Merchant Marine and Fisheries and is hereby reprinted as a CRS report with their permission.

CROP PRODUCTION

The United States Department of Agriculture (USDA) reports there are nearly 464 million acres of cropland in the United States, however only about 330 million acres are actually planted or harvested each year. The remainder are idled (68 million) or used only for pasture (65 million). In addition, there are about 591 million acres of grassland pasture. Most of the harvested cropland receives fertilizer and pesticide treatment in the normal course of crop production; a significant proportion of the grassland pasture is also treated from time to time with fertilizer and pesticides.

The excise taxes in H.R. 2199 are intended to raise $250 million from fertilizer and $500 million from pesticides each year. These estimates appear reasonable based on the level of tax specified in the bill and the quantities of these products sold for domestic use each year. However it should be noted that agricultural uses of fertilizer are only about 85% of total use, therefore only about 85% of the $250 million would be paid by farmers. Agriculture accounts for about 75% of the 1.1 billion pounds of conventional pesticides used each year. However, there are an additional 1.1 billion pounds of other pesticides, such as disinfectants and wood preservatives, used each year that would be subject to the excise tax. Agriculture's use of these products is probably no more than 30%.

If one were to arbitrarily assign agriculture's share of the fertilizer tax and agriculture's share of the tax on conventional pesticides to the crop sector, the total cost of $306.25 million annually amounts to slightly less than $1 per acre of planted or harvested cropland. If fertilized pasture is taken into account, the cost per acre would be even less. Of course the amount of these inputs used by different crops varies widely.

Material circulated by The Fertilizer Institute contained budgets for a number of crops that purported to show the change in costs and returns that would result from the fertilizer and pesticide excise tax (Attachment 1). In general, the data shown for fertilizer application rates, cost of fertilization per acre, crop yields per acre and revenues per acre are consistent with crop budgets prepared by other analysts. There does seem to be an error in the calculation of the increase in cost per acre caused by the "pollution tax", with the result that loss in net income per acre is overstated. Using the Fertilizer Institute data and correcting the arithmetic results in an estimated decline in the per acre net income of $3.19 for wheat and $8.03 for corn. To put these data in perspective, The WEFA Group estimates the 1992 returns over cash expenses for wheat were $52.55 per acre and $143.05 per acre for corn. The WEFA estimates include government payments to producers under the commodity programs. The

Fertilizer Institute budgets did not include government commodity program payments in the revenue per acre.

The comments prepared by the Potash and Phosphate Institute (PPI) claim that the proposed taxes in H.R. 2199 would increase nitrogen fertilizer prices by 13% to 24% and phosphorous fertilizer prices by 12% to 13%. These estimates seem high. If nitrogen is taxed at 0.845 cents per pound, the price of anhydrous ammonia would increase $13.06/ton from a base of $208/ton; a 7% increase. If phosphorous is taxed at 0.845 cents per pound, the price of triple super phosphate would increase $3.32 a ton from a base of $206; a 2% increase. The price of diammonium phosphate (DAP) would increase $6.43 a ton from a base of $224; a 3% increase. PPI estimates corn production costs would increase $5 to $8 per acre; estimates based on current fertilizer application rates suggest a $3 per acre increase in corn production costs. PPI estimates wheat production costs would increase $2 to $4.50 per acre; estimates based on current fertilizer application rates suggest a $1 per acre increase in wheat production costs.

PPI makes the claim that an important plant nutrient, sulphur (S) would be classed with pesticides and taxed at a rate that would prohibit its use as a fertilizer. H.R. 2199 defines pesticides in such a way that only sulphur registered for use to protect against plant pests would be taxed as a pesticide. Sulphur used as a fertilizer would not be taxed at all.

The PPI comments cite a USDA study that estimates yields must increase 50% to 100% by the year 2030 to meet projected food needs and suggest this goal would be impossible with the tax provisions of H.R.2199. Most analysts consider 40 year projections to be rather tenuous. The WEFA Group, an econometric consulting firm regularly provides 10 year projections of the agricultural sector. The WEFA projections show an 8% yield increase accompanied by a 9% increase in fertilizer use by the year 2002. These projections should not be threatened by the proposed excise taxes in H.R. 2199.

LIVESTOCK PRODUCTION AND ANIMAL FEED

The major animal enterprises in agriculture include dairy cattle, beef cattle, hogs, sheep, laying hens, broilers, and turkeys. In addition to the manufacturing of processed feeds for consumption by these animal enterprises, processed feeds are used in aquaculture, for wildlife and for domestic pets such as cats and dogs.

In terms of value per ton or dry matter content, there is a very wide range of products that might possibly be included under the definition of processed animal feed in H.R. 2199. For example, dehydrated alfalfa meal used for livestock feed can reasonably be valued at $85 per ton while dog food snacks average about $3,375 per ton. Nevertheless, the combined tonnage of processed feed in the agricultural sector and pet food sector combined is about 165 million tons, an amount that would yield about $442 million in tax revenues.

The structure of the processed feed industry is quite different from the structure of the fertilizer and pesticide industries. Unlike fertilizer or pesticides, feed industry sources estimate that 60% of animal feed consumed in agriculture is processed on the farm or by the feeder. The language of H.R. 2199 imposes the feed excise tax on any animal feed that is sold or used by the manufacturer or producer. Farm processed feed may contain a substantial amount of farm raised inputs along with certain processed inputs on which the tax has already been imposed. It would appear that the feed excise tax could impact individual producers in animal agriculture differently depending on whether they purchased their feed from processors or grew and processed the feed themselves.

If one assumes that only the 40 million tons of processed by-product feed ingredients fed to livestock and poultry would be taxed and the full amount of the tax was passed on to livestock producers, the cost to the livestock sector would be about $107 million per year. A portion of the 155 million tons of grain concentrate fed each year would also be taxed when it is processed and combined with other processed animal feed. A feed industry source estimates the total tonnage of agricultural processed feed subject to the tax would total 160 million tons. This would result in an additional cost to animal livestock producers of $428.8 million.

The various species used in animal agriculture vary greatly in size and in their consumption of animal feed per head or per pound of product produced, so the impact of the feed tax on cost of production will vary greatly. For purposes of general comparison the following data are useful. Farmers spend approximately $20 billion per year for purchased feed. A $428.8 million increase in feed costs represents an increase of 2.1% this farm expense category. In addition, about $38 million in pesticides taxes would fall directly on livestock producers. Furthermore, a substantial portion of the crop sector's costs from the fertilizer and pesticide tax would be passed on the livestock sector through higher grain and oilseed and roughage prices. If one assumed that one-half the crop sector's costs of $306.25 million are combined with the livestock sector's feed tax costs of $428.8 and pesticide tax costs of $38 million and all of this tax is passed through to producers, the total increase in the farm sector's cost of production would total approximately $620 million. This cost is less than 1% of the livestock sector's annual sales of approximately $86 billion.

FARM INCOME

These preliminary estimates indicate that the excise tax on fertilizer, pesticides, and processed animal feeds proposed in H.R. 2199 could increase the production costs of farmers by approximately $773 million per year. According to the USDA, gross cash expenses of the farm sector totalled approximately $130 billion in 1992. Gross cash farm receipts totalled $188 billion in 1992; net cash income was $57.7 billion. Using these estimates, the proposed excise taxes could increase farm expenses about 0.6% and reduce farm income approximately 1.3%. These calculations are somewhat simplistic because they assume no significant reduction in the use of fertilizer, pesticides, or processed animal feeds as a result of the tax (a fairly reasonable assumption) and they assume the costs are not passed on to consumers. This later assumption is reasonable in the short-run and less reasonable in the long-run. Even though farmers are price takers, rather than price makers for the products they sell, increases in the cost of production must eventually be passed on for production to be maintained in a competitive industry.

Attachment 1

IMPACT OF ENERGY AND ENVIRONMENT TAXES ON FARM INCOME

CORN

	NO TAX	BTU TAX	POLLUTION TAX
IMPACT ON PRODUCTION COSTS			
Average Application Rates (lbs/acre)			
Nitrogen	161 (1)	154 (2)	154
Phosphate (P205)	78	75	75
Cost of N & P Fertilization/Acre	$34.75	$34.08	$36.19
Increase in Cost Per Acre		0.78	2.89
IMPACT ON FARM INCOME			
Average Corn Yield/Acre	119 bu	116.1 bu	116.1 bu(3)
Corn Price	$2.25/bu	$2.25/bu	$2.25/bu
Revenues Per Acre	$267.75	$261.16	$261.16
Decrease in Revenue		$6.59	$6.59
Loss of Farm Income Per Acre		$7.37	$9.48
Annual Loss of Farm Income For Typical 700 Acre Corn Producer (not including additional costs of other inputs)		$5,159.00	$6,636.00
TOTAL ANNUAL LOST INCOME FROM BOTH TAXES COMBINED			$11,795.00

(1) 1991 ILLINOIS RATES. SOURCE USDA

(2) ASSUMES A FERTILIZER PRICE ELASTICITY OF .35 (CLEAN WATER FUNDING 1992)

(3) ASSUMES A YIELD ELASTICITY FOR N OF 0.4 (HOEFT, 1992)

Attachment 1

IMPACT OF ENERGY AND ENVIRONMENT TAXES ON FARM INCOME

WHEAT

	NO TAX	BTU TAX	POLLUTION TAX
IMPACT ON PRODUCTION COSTS			
Average Application Rates (lbs/acre)			
Nitrogen	55	52	52
Phosphate (P205)	32	31	31
Cost of N & P Fertilization/Acre	$12.65	$12.35	$13.11
Increase in Cost Per Acre		0.28	1.04
IMPACT ON FARM INCOME			
Average Wheat Yield/Acre	35.7 bu	34.7 bu	34.7 bu
Wheat Price	$2.97/bu	$2.97/bu	$2.97/bu
Revenues Per Acre	$105.93	$103.20	$103.20
Decrease in Revenue		$2.73	$2.73
Loss of Farm Income Per Acre		$3.01	$4.66
Annual Loss of Farm Income For Typical 1,500 Acre Wheat Producer (not including additional costs of other inputs)		$4,515.00	$6,990.00
TOTAL ANNUAL LOST INCOME FROM BOTH TAXES COMBINED			$11,505.00

NOTE: ACCORDING TO USDA, RETURNS OVER
FULL ECONOMIC COSTS FOR CENTRAL PLAINS WHEAT
PRODUCERS HAVE BEEN NEGATIVE FOR SEVERAL YEARS.

ASSUMPTIONS: FIGURES BASED ON 3-YEAR AVERAGES FOR APPLICATION RATES, YIELDS
AS WELL AS PRICES FOR WHEAT, AMMONIA, AND DAP. SOUCRE: USDA
ASSUMED FERTILIZER PRICE ELASTICITY: 0.35.
WHEAT YIELDS ASSUMED TO DROP 0.5 FOR EACH 1% DECLINE IN APPLICATION RATES,
AS PER WHITNEY, KANSAS STATE UNIVERSITY.

CRS
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June 17, 1993

TO:	House Merchant Marine and Fisheries Committee *Attn*: Barbara Jeanne Polo
FROM:	Amy Abel Analyst in Energy Policy Environment and Natural Resources Policy Division
SUBJECT:	Impact of H.R. 2199 on Residential Electricity Bills

You requested that CRS calculate the possible impact of H.R. 2199 on States' residential electricity rates. In part, this bill, the Polluter Pays Clean Water Funding Act, would tax electric utilities for water use at nuclear and fossil fuel-fired power plants. Water in the electric utility industry is used primarily to cool power plant emissions. Water use at hydroelectric facilities is exempt from this proposed tax

CRS used the only comprehensive electric utility water USE statistics available.[1] These data, compiled by the United States Geological Survey (USGS), are not completely precise. Notably, not all areas of the United States meter water use. In these areas, rough estimates of water use were reported. Electric generating and demand data were obtained from the Department of Energy.[2]

Within these limitations, the following table presents the results of CRS' analysis of the impact on residential electricity bills. **All figures are presented in 1990 dollars based on 1990 electricity generation and consumption.** On average, a household spent $745 per year on electricity in 1990. As calculated, the impact of the proposed water tax would have raised 1990 residential electricity bills approximately 0.6 percent, or by $4.65 per year. Several States' results need additional explanation. In the mountain States, most power plants recycle their water used for cooling purposes rather than discharging it after one cycle. This reduces the impact of the proposed tax considerably. States that rely primarily on hydroelectricity (Oregon, Washington, Idaho) are likely to be the least affected by this tax. South Dakota's water use figure is unexplainably low. It may reflect an error in data reporting.

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[1] Solley, Wayne B., et al. U.S. Geological Survey Circular 1081. *Estimated Use of Water in the United States in 1990.* Washington, D.C. 1993. p.55.

[2] Energy Information Administration. *Electric Power Annual 1990.* DOE/EIA-0348(90). 1992.

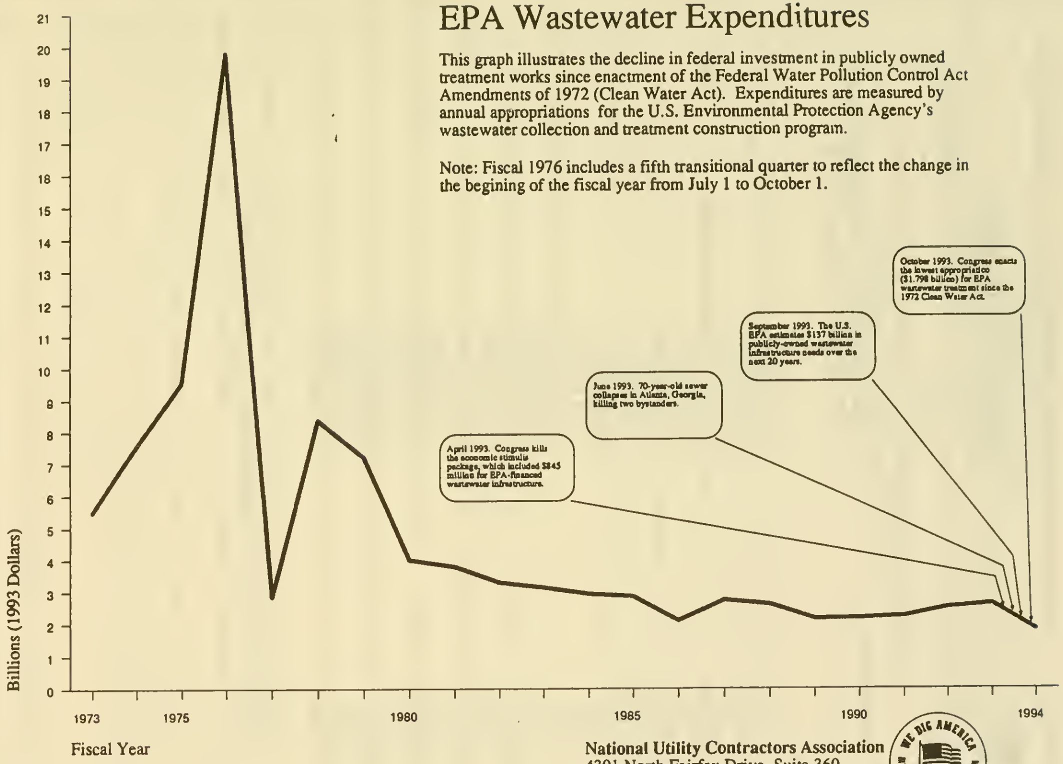
IMPACT OF H.R. 2199 ON RESIDENTIAL ELECTRICITY BILLS

REGION	STATE	RESIDENTIAL TAX ($/Yr/Customer)
EAST NORTH CENTRAL		$5.16
	ILLINOIS	$6.28
	INDIANA	$4.29
	MICHIGAN	$3.89
	OHIO	$4.89
	WISCONSIN	$6.20
EAST SOUTH CENTRAL		$6.44
	ALABAMA	$7.31
	KENTUCKY	$3.67
	MISSISSIPPI	$3.70
	TENNESSEE	$9.72
MOUNTAIN		$0.15
	ARIZONA	$0.13
	COLORADO	$0.15
	IDAHO	$0.18
	MONTANA	$0.09
	NEVADA	$0.09
	NEW MEXICO	$0.06
	UTAH	$0.14
	WYOMING	$0.29
MID-ATLANTIC		$4.66
	NEW JERSEY	$9.62
	NEW YORK	$5.09
	PENNSYLVANIA	$2.00
NEW ENGLAND		$6.08
	CONNECTICUT	$7.33
	MAINE	$4.54
	MASSACHUSETTS	$5.69
	NEW HAMPSHIRE	$5.25
	RHODE ISLAND	$6.67
	VERMONT	$3.82
PACIFIC		$2.37
	CALIFORNIA	$3.00
	OREGON	$0.03
	WASHINGTON	$0.33
PACIFIC NONCONTIGUOUS		$6.82
	ALASKA	$0.43
	HAWAII	$8.96
SOUTH ATLANTIC		$6.30
	DELAWARE	$8.44
	FLORIDA	$7.29
	GEORGIA	$2.38
	MARYLAND	$9.49
	NORTH CAROLINA	$7.21
	SOUTH CAROLINA	$6.25
	VIRGINIA	$8.12
	WASHINGTON, D.C.	$3.79
	WEST VIRGINIA	$3.39
WEST NORTH CENTRAL		$4.70
	IOWA	$4.61
	KANSAS	$2.50
	MINNESOTA	$3.00
	MISSOURI	$6.71
	NEBRASKA	$7.38
	NORTH DAKOTA	$6.97
	SOUTH DAKOTA	$0.31
WEST SOUTH CENTRAL		$3.78
	ARKANSAS	$3.29
	LOUISIANA	$6.54
	OKLAHOMA	$0.18
	TEXAS	$3.87
U.S. AVERAGE		$4.65

EPA Wastewater Expenditures

This graph illustrates the decline in federal investment in publicly owned treatment works since enactment of the Federal Water Pollution Control Act Amendments of 1972 (Clean Water Act). Expenditures are measured by annual appropriations for the U.S. Environmental Protection Agency's wastewater collection and treatment construction program.

Note: Fiscal 1976 includes a fifth transitional quarter to reflect the change in the begining of the fiscal year from July 1 to October 1.



April 1993. Congress kills the economic stimulis package, which included $845 million for EPA-financed wastewater infrastructure.

June 1993. 70-year-old sewer collapses in Atlanta, Georgia, killing two bystanders.

September 1993. The U.S. EPA estimates $137 billion in publicly-owned wastewater infrastructure needs over the next 20 years.

October 1993. Congress enacts the lowest appropriation ($1.798 billion) for EPA wastewater treatment since the 1972 Clean Water Act.

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FISCAL YEAR	EPA SPENDING -- WASTEWATER SRF AND CONSTRUCTION GRANTS
FY 73	$2.0 Billion
FY 74	$3.0 Billion
FY 75	$4.0 Billion
FY 76	$9.0 Billion* (5 quarter year)
FY 77	$1.416 Billion
FY 78	$4.5 Billion
FY 79	$4.2 Billion
FY 80	$2.52 Billion
FY 81	$2.55 Billion
FY 82	$2.4 Billion
FY 83	$2.430 Billion
FY 84	$2.435 Billion
FY 85	$2.4 Billion
FY 86	$1.774 Billion
FY 87	$2.361 Billion
FY 88	$2.304 Billion
FY 89	$1.950 Billion
FY 90	$1.9917 Billion
FY 91	$2.10 Billion
FY 92	$2.400 Billion
FY 93	$2.550 Billion
FY 94	$1.798 Billion **

** Does not reflect the $22 million recission in the SRF for Fiscal 1994.

CONSTRUCTORS OF WATER, SEWER AND UNDERGROUND UTILITY SYSTEMS

CAROL M. BROWNER
ADMINISTRATOR
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
SUBCOMMITTEE ON ENVIRONMENT AND NATURAL RESOURCES
OF THE
COMMITTEE ON MERCHANT MARINE AND FISHERIES
U.S. HOUSE OF REPRESENTATIVES

March 15, 1994

Good morning, Mr. Chairman and members of the Subcommittee. I am Carol Browner, Administrator of the U.S. Environmental Protection Agency (EPA). I am pleased to be here today in response to your request to talk about changes to the State Revolving Loan Fund program and alternative funding sources based upon the "polluter pays" concept.

This is a propitious time for me to be here. The Administration has recently released its recommendations for Clean Water Act (CWA) reauthorization signalling its commitment to a new era in environmental protection. Traditional programs have been successful in addressing many of the more apparent, simple problems. However, these programs and approaches are limited in what they can do to solve the increasingly complex problems of environmental pollution. The Clinton Administration intends to build upon these old successes. It proposes promoting a new approach of protecting and conserving the nation's water and its aquatic habitats and the living resources within, through integrated and improved programs that control and reduce pollutants from all sources.

Our recommendations deal with over 50 specific issues. They support six major directions for reauthorization of the CWA:

- The CWA should promote an integrated approach to address comprehensive water resource and wetlands protection at the watershed level through intra and inter-governmental, public and private partnerships.
- The CWA should provide for a new level of progress in effectively controlling polluted runoff associated with wet weather and other conditions.
- The existing Federal and State water quality and toxics control programs should be strengthened through stronger enforcement, more pollution prevention, and other improvements.
- The CWA should encourage dischargers to move beyond mere compliance with regulatory requirements.
- The water quality infrastructure of States and municipalities should be streamlined and strengthened.
- Amendments to the CWA should be crafted to minimize unfunded mandates, to increase flexibility and to cut red tape for States, municipalities, and the private sector so that resources can be targeted to the most serious problems.

In line with these key directions, the Administration is recommending several changes to the CWA which we believe will promote funding for water and resource protection activities. Many of these recommendations address issues similar to those addressed in H.R. 2199. In my following remarks I will talk about our recommendations to enhance the State Revolving Loan Fund, our recommendations to promote user-based permit fees and trading, and our thoughts on alternative funding mechanisms.

Enhancing State Revolving Loan Funds

Since 1956, the Federal government has provided significant funding to local communities to construct wastewater treatment plants. The Federal government has distributed over 68 billion dollars to improve the quality of the nation's waters. Most of the funds were awarded under the construction grants program authorized by Title II of the CWA. In 1987, as part of the Water Quality Act, Congress decided to phase out these grants and establish a State Revolving Loan Fund capitalized with Federal dollars. This Fund, known as the SRF, was intended to be self-perpetuating by providing loans at or below market rate, including zero interest loans, to be repaid by recipients within twenty years. Recognizing the need for local communities to address a broad range of water quality problems, Congress authorized States to make SRF loans available for nonpoint source and estuarine projects as well as for municipal wastewater treatment. Congress determined that Federal contributions to the Fund should phase down and end after FY 1994.

The SRF program has been successful. All States now have approved programs, have received capitalization grants, and are making loans. SRF funding has totalled about 16 billion dollars consisting of 8.5 billion Federal dollars, 1.7 billion dollars of State matching funds, and 6 billion dollars in bond proceeds Thirteen billion dollars have been made available for needed projects, the remaining three billion dollars have been held in reserve accounts to secure leveraged bonds

SRF loan repayments continually replenish the funds, making more dollars available for water quality improvement. Approximately 70% of loan assistance has been for financing the construction of secondary and advanced wastewater treatment plants. Another 25% has been used for sewer construction, and the remaining 5% has been available for storm water, nonpoint source management, and other projects.

The Administration recognizes that significant water infrastructure needs remain. We have given much thought to the best way to meet these needs. After much deliberation we have decided that the existing SRF, with certain refinements, is the most equitable way for the Federal government to fund water infrastructure needs.

The range of eligible activities under the current SRF is already quite broad and includes certain high priority areas such as nonpoint source management, estuarine protection, Combined Sewer Overflow abatement, and storm water management. In light of Federal budget realities, our understanding of the types of impairments, and currently available alternative Federal funding sources, we recommend only small but significant changes to these eligibilities. We recommend including restoration and protection of riparian areas within the context of a publicly-administered program, initial capitalization of a wetlands mitigation bank, development and implementation of water conservation activities when they are cost-effective alternatives to expanding publicly owned treatment work (POTW) treatment capacity, and programs promoting municipal pollution prevention. We also recommend removing the restriction on use of SRF funds for combined sewer overflows, storm water controls, and sewer rehabilitation. On the other hand, we also favor some restrictions such as restricting eligibilities to projects whose principal purpose is directly related to surface water quality improvement as defined by chemical, physical and biological parameters. We feel that these changes would make the best use of limited Federal funds while encouraging States to address high priority needs.

Because limited SRF funds exist, we feel it is important that States effectively set priorities and target assistance towards achieving the greatest environmental results, particularly within the framework of watershed planning. We therefore recommend that the existing priority systems and lists be expanded to include all SRF-eligible projects, not just wastewater treatment facilities. We also believe that the current emphasis on State flexibility in using SRF funds should be maintained. We do not support the use of set-asides to foster funding of particular activities which are eligible for SRF support. We do support States, at their option, establishing dedicated pools within their overall priority lists for particular high-priority activities such as nonpoint source or assistance to small communities.

H.R. 2199 recognizes the special needs of small and "hardship communities" and recommends a special grant program to meet these needs. The Administration recognizes that many communities cannot take advantage of the SRF program as they cannot afford to repay loans, even at zero percent interest. These communities are not well served by other financing sources due to their limited credit standing. Small communities are especially hit hard as projects in these communities are very expensive on a per capita basis.

We considered carefully the plight of distressed communities. We examined many funding options which have been suggested to help them such as special grants, special set-asides for technical assistance, extended loan repayment periods, and additional subsidies under the SRF. We carefully weighed the needs of many communities against what we considered to be the need to maintain the integrity of the SRF and its ability to meet future water infrastructure needs. Finally, we decided to focus efforts on greater State flexibility in the use of SRF funds enhanced by greater Federal coordination.

Some States already manage separate loan and grant programs targeted towards small and disadvantaged communities outside of the SRF. We recommend that other States be encouraged to establish similar separate programs outside of the SRF so that its long-term purchasing power is not eroded. However, some special assistance may still be needed. Thus, we also recommend that States be authorized to provide, at their option, additional subsidies from the SRF to certain disadvantaged communities for which additional help is needed to make the project affordable. States would determine the criteria for defining these disadvantaged communities based on EPA guidelines. Subsidies could include negative interest rates up to 2 percent, extending loan repayments of up to 30 years, as long as they don't exceed the useful life of the project, and others States could make such subsidies for up to ten percent of the annual loan value

We also recommend that the current section 604(b) set-aside be amended to provide for technical assistance to needy communities.

USDA's Rural Development Administration (RDA) has loan and grant programs to help rural areas develop water and wastewater disposal systems. Towns and rural areas with populations less than 10,000 are eligible for USDA's assistance. In order to ensure that needy communities are able to afford water and sewer systems, three interest rates are offered on the RDA loans with the lowest rate offered to those communities with a median household income below the poverty level. Grants are also available to reduce rural water and wastewater disposal costs to a reasonable level.

In addition to providing increased funding to the RDA for loans and grants for wastewater and drinking water programs in rural communities, the Administration intends to improve coordination between the SRF and other Federal programs such as those funded by the RDA or Community Development Block Grant programs to ensure selection of projects based on relative financial need, environmental benefits, and other factors as appropriate.

We do not support exempting the SRF program from compliance with Federal cross-cutting or project requirements. However, we support a few limited changes. To relieve cost burdens, communities under 10,000 should be exempted from complying with various Title II planning requirements. We also examined the need for value-engineering analyses, and believe that value-engineering should be required only for those projects with total costs of over 25 million dollars.

Although we want to limit requirements, environmental justice is of key concern to this Administration. Thus, we believe that recipients of funds directly made available by capitalization grants for wastewater treatment should be required to examine if the siting of these facilities will have a disproportionate impact on poor or minority communities.

Mr. Chairman, you and I both know that water infrastructure needs total in the billions. The Administration recognizes the need to provide additional Federal seed money to the SRFs. However, it also recognizes today's fiscal realities of limited Federal funding. Our objective is to protect the long-term purchasing power of the SRF and to assure that States have the ability to provide two billion dollars in assistance annually. To meet this objective, we recommend that Federal funding be continued through FY 2004 for total additional funding of approximately 13 billion dollars from FY 1995 through FY 2003. We recommend authorizing roughly two billion dollars in 1995 through 1998, and declining amounts from 1999 through 2004. At this point we anticipate that the combination of leveraging and repayments to State funds will enable SRF loan activity of around 2 billion dollars annually while allowing States the flexibility of providing special subsidies to disadvantaged communities.

I believe that the changes I have outlined above will make the SRF a better targeted and more flexible funding source for water infrastructure needs.

Permit Fees

Perhaps equally important as funding infrastructure needs is the need to fund State programs. Current funding of the NPDES, pretreatment, and sludge management programs is insufficient to implement current mandates. Advancing science, more comprehensive controls, and future CWA changes place increased demands on already stretched resources. We felt we had to address the eroding base State program support. We therefore recommend that EPA and the States be required to develop comprehensive fee systems. These fee systems alone or in conjunction with appropriated funds, grants or other revenue sources should completely cover the costs of the NPDES, pretreatment, sludge management and other surface water programs such as water quality standard setting and monitoring. Such fees move us further towards a system where polluters, and not the public, pay the costs of those programs that are developed to enable polluters to discharge in an environmentally safe manner.

Approximately 40 of the States administering the NPDES program today have some sort of fee system in place.. The approaches that the States follow vary. They include flat fees for all dischargers within specified categories, variable costs to cover administrative costs of issuing different types of permits, annual permit maintenance fees, variable costs based on volume or toxicity of discharge, flat fees plus a variable fee based on the nature of discharge, and other permutations and combinations. Our proposal allows States the flexibility to choose a fee system most appropriate to their needs as we do not want to interfere with systems that have already been developed and are working. However, we do support and encourage systems with fees which consider pollutant loading or other factors which may provide economic incentives to promote pollution prevention.

We also recommend increasing the fees charged by the Corps of Engineers for permits issued under section 404 of the CWA. Under the National Performance Review Initiative we reviewed these fees, found them to be insufficient, and recommended that they be increased to benefit both taxpayers and Corps customers by providing additional revenues to expedite processing of applications. The Corps of Engineers would establish a fee structure for major regulatory actions and deposit the proceeds in a special account. The funds would be used to increase the effectiveness and efficiency of the section 404 permit issuance process.

Pollutant Trading

Federal policy for controlling water pollution traditionally has not relied on market-based incentives. Yet, trading programs are proving to be a successful and cost-effective approach to reducing air pollutant emissions under the Clean Air Act. Trading has also proven to be successful in the water program in the limited number of cases where applied. In Tar Pimlico, North Carolina, for example, point and nonpoint source trades to reduce nutrient loads resulted in clean up at a cost savings of about 12 million dollars. In Boulder Creek, Colorado physical restoration of five river miles cost 1.4 million dollars compared with the 23 million dollars that would have been needed for municipal wastewater treatment upgrades, and resulted in greater ecological and recreational benefits.

Common to these and other trades that have occurred is the targeting of activities within a particular watershed. We believe that trading pollutant credits can offer an important means of lowering the cost of improving our waters and aquatic resources while accelerating clean-up and should be encouraged as part of our recommended watershed approach. To promote trading, particularly in watersheds, EPA should publish a guidance document regarding trading of pollutants. The guidance should: establish criteria to allow for prior approval of trades by State permitting authorities and by agencies that administer control programs; specify that trades shall not violate water quality standards; specify that where water quality standards are not met, trades based on TMDLs may still take place; identify settings in which reasonably accurate and unbiased estimates of pollutant loadings based on models may be suitable for use in trades that the high cost of on-site monitoring would otherwise prohibit; clarify that the anti-backsliding clause of the CWA does not prohibit trading; and authorize trading among indirect industrial dischargers to the same POTW.

The guidance should be based on a study which EPA conducts to assess trading opportunities for conventional pollutants, between pollutants with similar environmental effects, for toxic pollutants, between different media, and among a variety of point and nonpoint sources. This study should also evaluate how best to implement trading. We also recommend that EPA be authorized to undertake inter-media trading demonstration projects in order to evaluate the environmental and economic benefit of such pollutant trading. Results of the study, as well as any activities conducted with the States, would be made available to Congress, States, and the regulated and environmental community.

Alternative Funding Mechanisms

The Administration recognizes that other promising market-based approaches may be quite successful in realizing cost-effective pollutant reductions and raising revenue. In line with this potential, we recommend that EPA undertake a study of the feasibility, implementability, and cost-effectiveness of fertilizer taxes, taxes on the discharge of harmful pollutants, and other promising market-oriented approaches in comparison to approaches mandated by the CWA. We would submit the results of this study to Congress, interested States, and the public for further discussion. The study would address the polluter pays concept proposed in H.R. 2199. We favor a study due to the many factors that remain to be considered in determining whether, how, and what fees or taxes might be proposed.

A water discharge fee or tax system must consider several issues. First, the system must develop an appropriate way to account for pollutants. At the present time, we do not have a readily-available system that ranks all the pollutants found in water and considers both their ecological and health risks. Chemicals on the

Toxics Release Inventory do not necessarily reflect chemicals of concern to the water environment. Pollutants, such as nutrients and sediments have very different effects from those of toxic pollutants. Nevertheless, water quality impairments from these pollutants are serious and widespread. In addition to considering all potential pollutants, a ranking system might consider the acute vs. chronic effects of pollutants, their persistence in waters, or their ability to bioaccumulate.

Second, the system needs to consider the nature of receiving waters and if and how it should account for the impact of a discharge on different waters. Impairment is a function of both the discharge and the characteristics of the receiving waters. Moreover, society may want to consider higher taxes for discharges into certain waterbodies which merit greater protection or preservation.

Third, the system must be sufficiently flexible to change weightings. As we discover more about pollutants or learn more about their impact, we may want to change taxes or fees levied. We may want to add more substances subject to a tax. Or, we may want to increase or decrease the weighting factors and the resultant tax on certain pollutants. A legislatively proscribed categorization might hinder making these changes as we develop better information. We may want to consider a process whereby the agency has the flexibility to determine or change weightings based on public notice and comment.

Fourth, the system must also consider the impact on other media. A tax on pollutants in water might result in the disposal of these pollutants in other media where the disposal costs are lower.

Fifth, a water discharge tax or fee must also consider the impact on different industrial categories or small businesses. Depending on the weightings ascribed to conventional and toxic discharges, certain industries may be asked to pay a significant portion of their revenues in taxes. Early last year the Office of Water commissioned a study assessing effluent discharge taxes. The study identified five different revenue targets and estimated what discharge taxes would be necessary to realize these targets. We found that even at our lowest revenue target, one industry sector would have paid 47% of its revenue in taxes. Moreover, many small businesses today are marginally profitable. We want these businesses to continue for both economic and societal reasons. A discharge tax may be that proverbial straw that breaks their back and throws them out of business. In order to minimize an unreasonable impact on industry, a tax system would need to consider limits based on size and/or financial impact.

Sixth, the system must consider other fees and taxes that may be in place. As I mentioned, many State have permit fee programs in place. Many municipalities, too, have or are developing fees for discharges into municipal sewer systems. We want to design a Federal fee system so that it supports and nurtures State efforts rather than supplants them.

Seventh, a discharge tax or fee system must be easily monitored and enforced. EPA does not collect standardized data on industries discharging into wastewater treatment plants. Monitoring data are reported to the States administering the NPDES program and are not centrally located. Expanding monitoring requirements can prove to be very expensive. A simple, inexpensive approach to ensuring that taxes are being paid must be considered as part of the implementation of a tax system.

Taxes on fertilizers, pesticides or other agricultural products must also consider similar implementation issues. In particular, a tax on agricultural products must consider the most appropriate products to be taxed. Unlike point sources, it is difficult to assess the extent of pollution by a single source as soil type and management practices can determine if pesticides or nutrients reach ground or surface waters. The tax is a surrogate based on a general expectation of pollution. All materials which can be shown to contribute directly to nonpoint source problems should be evaluated for inclusion in the tax system.

Second, taxes on agricultural products must consider the cumulative impact on different types of farming and the individual farmer. The relative impact of combined taxes might severely hinder one type of farming. Producers of commodity crops like corn, soybeans, rice, cotton and wheat use the largest volumes of pesticides and fertilizers. However, their use by fruit and vegetable growers is significant and the relative impact on this sector might be higher since the intensity of chemical use is greater for these types of crops. Similarly a farmer with mixed types of farming might find that the taxes on agricultural products represent a significant percentage of revenue. Again, some type of limit may be appropriate based on financial impact and/or size. Third, as with discharge taxes, taxes on agricultural products must also consider any similar taxes that State or local governments have in place.

In addition to the implementation issues that I have described, questions of equity need to be considered. Certain industries with the possibility of zero discharge through media transfer would avoid taxes whereas other industries which discharge wastes would be subject to additional costs and potentially decreased profits. Industry subject to a water use tax as well as a water discharge tax might be concerned about the potential for double taxation. Individual farmers may feel that they do not contribute to pollution due to the management practices that they follow; yet, they are subject to a tax.

Moreover, depending on how the revenues raised are to be used, different sectors might question the use of monies to remedy problems not of their making. All might question the use of their funds to support water and sewer bills. Industry might see itself paying for problems that are urban or agricultural in nature and not of their making.

Last, all systems must consider the relationship between raising revenue and promoting pollution reduction. A discharge tax or product use tax will of course raise revenue. It will also have what we consider to be the desirable effect of reducing pollution. Farmers would seek to decrease the use of the agricultural products used. Dischargers would seek to eliminate materials resulting in highly taxed discharges or substitute them with lower taxable substances. Even the smallest tax will create some incentive for a reduction in dischargers. Larger taxes or fees will create an even greater incentive. The design of any revenue raising system must consider the extent to which it will raise revenue and the extent to which it will change behavior. A system designed to cover specific financial needs must be sufficiently flexible to allow for changes to accommodate changing practices. A tax or fee system cannot rely upon a shrinking population of dischargers or product users to bear the burden of supporting water quality needs.

I have laid on the table a series of issues to consider when applying the polluter pays concept. We intend to study further these issues along with the environmental and economic benefits and costs associated with various market incentives. We intend to share our results with Congress and the public so that we all can make informed decisions on the best ways to raise revenue and to prevent and control damage to our waters and aquatic resources.

This concludes my statement. Thank you for the opportunity to talk about our recommended improvements to the SRF and some new approaches for water program funding. I would be happy to answer any questions you may have.

* * *

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

May 12, 1994

OFFICE OF CONGRESSIONAL
AND LEGISLATIVE AFFAIRS

Salley Bent
Staff Assistant
House Merchant Marine and Fishereis
U.S. House of Representatives
Washington, D.C. 20515

Dear Ms. Bent:

EPA testified at the March 15, 1994 hearing on Congressman Studd's "Polluter Pays Legislation". Enclosed are suplemental information for inclusion in the hearing record.

If we can provide further assistance, please do not hesitate to cntact our office.

Sincerely,

for Robert W. Hickmott
Associate Administrator

Enclosures

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FEES PAID BY WASTEWATER DISCHARGERS

Question: What are the average taxes, fees, and/or other charges paid by dischargers into U.S. Waters?

Answer: The federal NPDES program has no permit fees authorized under the Clean Water Act (CWA); however, fees are being considered in the reauthorization process. Permit fees are collected by states and local governments. We have no information on taxes paid by dischargers or on fees collected by local governments. In a survey of state governments conducted in the summer of 1993, we found that state permit fee systems vary widely and that an average cost per discharger is not possible to calculate. However, we provide information on two states as examples. New Jersey has some of the highest fees in the nation and Arkansas some of the lowest.

New Jersey	
Municipal Surface Water	$500 - 540,000
Industrial Surface Water	$500 - $700,451
Signiuficant Industrial Users	$500 - 73,711
Municipal Ground Water	$500 - 22,614
Operating Landfills	$2,500 - 65,038
Residuals	$500 - 11,875
Landfill - Remediation	$568 - 92,900
Groundwater Remediation	$500 - 398,674

Arkansas	
Filing fee	$50
NPDES Wastewater Discharge Permits	$200 + ($165 - 1,650)xQty (where Qty = mgd)
Non-NPDES Wastewater Permit Fees	
Initial	$150 - $1000
Annual	$60 - 500
Modification	$60 - 500

Mexican Border/NAFTA

Question: What funding has been included in the FY 1995 budget for water-related activities along the U.S.-Mexican Border?

Answer: For wastewater treatment infrastructure:

Tijuana	$ 52.5 million
Mexicali, Nogales, etc	47.5
U.S. Colonias (Texas)	50.0

	$150.0 million

Additionally, the Municipal Support Budget has an increase in AC&C funds of $2.1 million for development of a Phase II groundwater monitoring network along the Border.

WASTEWATER TREATMENT NEEDS

Question: According to the justification, the 1992 Needs Survey should show increased needs for traditional wastewater needs. What is the estimated costs for wastewater treatment needs? What is the estimated costs for other types of needs (i.e., CSOs stormwater, nonpoint sources, etc.)?

Answer: The 1992 Needs Survey documents total estimated needs of $137 billion. Of this total, the estimated cost of traditional wastewater treatment (categories I-IV, which includes secondary treatment, advanced treatment and sewers) needs based on the 1992 Needs Survey is about $86 billion.

The estimate of cost for other types of needs including CSOs, stormwater, and nonpoint sources is about $51 billion.

Innovative Technology

Question: Is there somebody within your agency with whom I could work to develop ideas regarding innovative technologies to replace failing septic systems in rural areas?

Answer: In Region X, Kathleen Veit, Chief of the Program Coordination Branch is able to provide assistance. She may be reached on 206-553-1983. In addition, the West Virginia Small Flows Clearinghouse has information which may be of assistance. It may be reached at 1-800-624-8301.

Water Environment Federation
Preserving & Enhancing the Global Water Environment

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Testimony on the Polluter Pays Clean Water Funding Act and Reauthorization of the Clean Water Act

By

Billy G. Turner
President, Columbus Water Works, City of Columbus, Georgia

On Behalf of the

Water Environment Federation

Before the

Subcommittee On Environment And Natural Resources
Committee On Merchant Marine And Fisheries

U.S. House Of Representatives, Washington, D.C.
March 15, 1994

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Statement Of Billy G. Turner, President
Columbus Water Works, City of Columbus, Georgia

On Behalf Of The Water Environment Federation

Before The Subcommittee On Environment And Natural Resources
Committee On Merchant Marine And Fisheries
House Of Representatives
Washington, D.C., March 15, 1994

On H.R.2199, The Polluter Pays Clean Water Funding Act
And Reauthorization Of The Clean Water Act

Mr. Chairman and members of the subcommittee, I am Billy Turner, President of the Columbus Water Works, an independent department of the City of Columbus, Georgia government which provides water, wastewater and combined sewer overflow control services.

I appear before you today on behalf of the Water Environment Federation ("WEF" or "Federation") an international not-for-profit technical and educational organization of more than 40,000 professionals dedicated to achievement of improved water quality and the advancement of science and technology for pollution prevention and control.

The Federation has been reviewing a range of clean water funding options and welcomes the opportunity to discuss this issue with the committee. The private and public benefits of enhancing wastewater as well as water supply infrastructure have been well documented. [1] Efforts by the federal, state, and local governments, as well as the private sector, have brought about a significant improvement in the nation's water quality during the past 20 years. Clean Water Act ("CWA'") requirements, however, are increasing at a time when the availability of federal financial assistance is decreasing. Reauthorization of the Clean Water Act which includes continued federal financial assistance is needed if the CWA is not to join the ranks of other "unfunded mandates" imposed on local governments.

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[1] See America's Environmental Infrastructure: A Water And Wastewater Investment Study, Apogee Research Inc., for the Clean Water Council, December 1990, and A Report on Clean Water And Job Creation, prepared for the National Utility Contractors Association by Apogee Research, Inc., March 30, 1992.

Local governments are shouldering the primary burden in funding implementation of Clean Water mandates. With this recognition, the Federation supports a continued federal funding role for: (1) pursuing further water quality improvements; (2) meeting new clean water requirements; (3) assisting small or disadvantaged communities; (4) capitalizing the state revolving fund ("SRF") program; and (5) supporting research for scientifically based regulations and improved process technology and understanding.

The Federation's position statement, "Financing Water Quality Improvements," is attached to this statement, and we request that it be made a part of the record. This statement outlines several alternative funding options, including grants to small communities, and privatization, and includes detailed recommendations for strengthening the SRF program. Also attached is the Federation's recent testimony regarding water quality research needs.

Additionally, WEF strongly supports the watershed management process designed to assist local governments by making nonpoint, as well as point, sources of pollution more accountable for water quality improvements. This approach, documented in the Water Quality 2000 report A National Water Agenda for the 21st Century , would address water quality improvement comprehensively and allow the scheduling of infrastructure investments on a business-like basis. Water Quality 2000 is a coalition of 83 organizations convened by WEF to address water quality issues into the next century. We are providing a copy of this report for the committee's use.

The Post-Secondary Treatment Era

Local governments over the past 20 years have been confronted with mounting federal requirements, particularly for environmental protection, while federal funding participation has diminished both in absolute dollar amounts and as a percentage of overall cost of requirements. The experience of Publicly-Owned Treatment Works (POTWs) since the passage of the 1987 Water Quality Act, which is moving POTWs to treat wastewater to levels above secondary treatment, has been one of major change manifested in three imperatives:

1. Major Increase In Clean Water Requirements

The first imperative is that local governments are, and have been, subject to extensive Clean Water Act requirements over many years which frequently results in construction of new, sophisticated and expensive treatment facilities that must be planned, designed and built. Many of these requirements date from the original 1972 Act as amended in 1977 and 1981.

Summarized, these initial CWA requirements for municipalities include: (1) meeting technology-based secondary treatment levels; (2) compliance with water quality limits more restrictive than secondary treatment; and (3) development and implementation of local limits to protect water quality and wastewater treatment plant processes, and industrial pretreatment permitting programs.

Significant additional requirements were added by the 1987 amendments and subsequent Environmental Protection Agency ("EPA") regulations issued since 1987. These newer requirements include: (1) controls on chemical-specific toxics and whole effluent toxicity; (2) controls on combined sewer overflows consistent with the EPA's new CSO Policy; and (3) compliance with NPDES stormwater permits which currently require attainment of water quality standards. In addition, special regional legislation for the Great Lakes states is resulting in more restrictive requirements which may ultimately be directed to other parts of the United States.

Where appropriate, POTWs also are developing wastewater reclamation and reuse systems to protect water resources and prevent pollution.

EPA, the states and the POTW community are only now implementing many of the 1987 amendments for these programs, while Congress is considering further requirements as part of the Clean Water Act reauthorization.

2. Major Increase In Municipal Wastewater Facility Construction Needs

Second, these requirements have resulted in continued rapid growth in municipal wastewater treatment facility construction needs. EPA's 1992 Needs Survey reports $145.7 billion in unmet needs (excluding stormwater compliance), an increase of $35 billion in the two years since the last Needs Survey. The Needs Survey indicates that $26 billion worth of secondary treatment construction costs still remain.

Perhaps the most significant change in the 1992 Needs Survey is in CSO control needs. EPA-identified costs associated with controlling CSOs increased from $20 billion in 1990 to $42 billion in 1992. Others would estimate CSO control needs at much higher levels.

These are only reported (or modelled) needs as reflected in facility plans prepared to meet current CWA requirements. Other uncounted, or as yet unplanned, construction needs exist. In particular, significant funding will soon be needed to rehabilitate and replace existing municipal wastewater treatment facilities. These costs are not reflected in the Needs Survey. Absent federal funding support, most of these needs will be met by local wastewater ratepayers, resulting in progressively increasing rates for communities of all sizes. This will be a particular burden for disadvantaged or small communities.

We do not have information or projections relative to the impact on small or medium municipalities. However, a recent survey by the Association of Metropolitan Sewerage Agencies ("AMSA") of 106 of its large POTW members revealed that these municipalities are paying about 84% in direct municipal financing of the construction costs to comply with the Act. [2] Other financing sources include SRF loans (6.7%), state grants (.9%), remaining federal grants (7.9%), and miscellaneous other sources (.9%). In other words, over 90% of wastewater treatment facility construction costs are being paid by local governments through direct local financing or loan repayments to SRFs.

AMSA also has reported that annual household user fees are doubling every six years and are projected to increase at an accelerated rate in the future due to increased construction, operation and maintenance costs to meet additional requirements.[3]

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[2] Association of Metropolitan Sewerage Agencies, 1993 Municipal Wastewater Treatment Agency Financial Survey, to be published Spring 1994.

3. Major Increase In Demand For Improved Science And Technology

Third, local experience in water quality standard setting as part of the Great Lakes regional program and other water quality permitting activities dramatizes the need to expand financial resources for improved science to ensure sound, risk-based regulatory decisions and the improved technology needed to implement those decisions. This objective is particularly important for decision-making at the local, watershed, and state levels where site-specific water quality standards are developed and approved under current law. Better science, and the necessary protocols for its use, will likely determine the success of any new watershed program.

Additionally, EPA's innovative and alternative treatment assistance program was phased out concurrent with the end of the Title II grant program in Fiscal Year 1990. Overall investment in the development of improved wastewater treatment technology has been markedly curtailed since then. The POTW community has only been able to make limited investments in treatment technology, research, and demonstration studies through the efforts of individual POTWs or in collaboration with the Water Environment Research Foundation ("WERF"), with limited EPA participation.

For instance, the Columbus Water Works is preparing to conduct full-scale tests on an enhanced vortex process to control CSOs based on pilot studies conducted with the support of WERF, other cities, and EPA. The vortex process generally is recognized as the least-cost control option for CSOs. The Columbus CSO Advanced Research Facility will be the initial test for a range of technologies, including air flotation, high level filtration, and chemical and nonchemical alternatives to chlorine disinfection. These tests will further improve the cost-effectiveness of the vortex process.

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[3] "The Cost of Clean," The Association of Metropolitan Sewerage Agencies, June 1992.

The cost of this Advanced Research Facility, for which the City of Columbus is seeking federal participation, is approximately one-quarter of the entire cost of our mandated CSO control program. The remainder of our CSO control program is being funded solely from local sources. The decision to go forward with a locally-financed CSO program was made only after significant debate and by combining the CSO program with several strongly supported public projects, including a civic center and a city-wide recreation program which later resulted in a 1996 Olympic venue.

While Columbus is seeking to build this test facility, the data generated by the combined testing of these technologies will provide a greater benefit to other CSO communities as they plan and design treatment facilities to comply with the Act and EPA's forthcoming CSO Policy.

As with other national endeavors, further development of treatment technology, research, and demonstration studies is key to improved water quality and heightened cost-effectiveness. Increased federal support would make a significant contribution to technology development. To this end, Congress should consider allowing federal funding to be utilized for innovative and alternative projects.

Clean Water Funding Options Should Be Considered Now

Mr. Chairman, continuation of the current funding policy would represent a fundamental "disconnect" with these three imperatives as we know them to exist, particularly as applied to municipal construction needs under current law and the need for better science and technology to meet the mandated, enforceable requirements of the Act.

During the past two years, there has been increasing recognition that additional resources are needed to renew the national clean water commitment. With constraints on the federal general fund by a variety of fiscal limitations, congressional consideration of alternative funding sources is critical to moving this program forward at local, state, and federal levels.

As indicated, local spending is expected to continue to increase. Federal financial assistance must continue, recognizing the expansion of a wide range of federal mandates and the need to avoid disproportionate local rate increases that would lead to community forum shopping by business and industry.

H.R.2199 brings an important dimension to the clean water debate and you are to be commended, Mr. Chairman, for its introduction and consideration by this committee. Clearly, federal financial support to achieve our clean water goals is needed still. Alternative revenue provisions, including a dedicated revenue approach for wastewater infrastructure, should be considered by Congress as part of CWA reauthorization efforts. This general approach has been taken with regard to the nation's transportation infrastructure program. In view of current needs and potential additional requirements, this consideration cannot wait for the next clean water reauthorization cycle.

It would appear that the Clinton Administration also is considering alternative funding approaches, as reflected in the economic incentives study proposed in the President's Clean Water Act Reauthorization Recommendations, and as reflected in the Vice President's National Performance Review. Now that the Administration's initial clean water proposals have been issued, it is time for the White House to join with you and others in evaluating funding and revenue alternatives.

At the heart of the funding issue are general fund constraints and taxes. The funding issue will be difficult to resolve. As a result, it would be appropriate to explore all funding mechanisms. Such mechanisms might include; a dedicated revenue approach, on a limited basis, to a broad range of products contributing to water pollution or contributed to wastewater treatment plants; an increase in SRF funding levels; grants on a limited basis for disadvantaged or small communities; or a combination of these or other sources.

Recognizing the enormity of the pollution prevention and control burden on municipalities, plus other federal mandates, congressional consideration of a combination of grants and loans would be reasonable. Between 1987 and 1990, EPA and the states managed a combined funding program under Titles II and VI of the Act. Further, the Rural Development Administration has administered a combined water and sewer grant and loan program targeted at small communities for many years. This combination was authorized also by the 1972 Act (federal grants and loans) as an integral part of the expanded federal role and the local-state-federal partnership.

Conclusion

Working with local government, state representatives, and other interests, we recommend that Congress and the Administration convene a forum on clean water funding and revenue alternatives this spring while Clean Water Act reauthorization is receiving high public and congressional attention. .

The purpose of such a forum or workshop would be to identify funding and revenue options on which all parties could reach consensus, and which would provide for stable, predictable, and adequate long-term funding to help protect and improve our nation's waters. The workshop approach could be similar to the "reg-neg" or negotiated rulemaking process that proved successful in developing EPA's CSO Control Policy by bringing a range of interests together to develop a consensus. The Water Quality 2000 policy project initiated by WEF also successfully used this approach. A funding alternatives workshop also would round-out the CSO Policy, which does not address construction financing. WEF would be pleased to assist a Congressional or Administration initiative to organize and conduct such a workshop.

This completes the Federation's formal statement. I would be pleased to respond to the Subcommittee's questions.

Financing Water Quality Improvements

Approved April 19, 1991 by the WEF Executive Committee

The Water Environment Federation strongly believes there is a continued need for a Federal financial role in helping local governments meet federally-mandated wastewater treatment requirements under the Clean Water Act. Under the 1987 amendments, Congress shifted primary financial responsibility for facility construction to the states. At that time, it was anticipated that $18 billion in Federal funding would be made available in the form of grants ($9.6 billion) and the new State Revolving Fund loan program ($8.4 billion). Unfortunately, this level of funding has not been realized.

WEF believes that continued Federal funding is necessary to attain further water quality improvements in the coming decade, even as primary financial responsibility for treatment facility construction is borne by the states. A continued Federal role is necessary to:

1. Meet new environmental requirements as mandated under the Clean Water Act.
2. Assist small communities which otherwise cannot afford wastewater treatment.
3. Capitalize State Revolving Funds.

Additionally, Congress is urged to explore alternative financing mechanisms for needed water quality improvements.

Funding To Meet Clean Water Act Goals

Congress should appropriate $2 billion annually to provide a sound financial base for meeting new water quality initiatives under the Clean Water Act. Most of these funds should be used to adequately capitalize State Revolving Funds (SRFs). The SRF concept will be successful when funding is at a consistent and predictable level over a period long enough to create financial stability.

Federal funding also is appropriate to ensure accomplishment of new environmental requirements under the Clean Water Act. A primary example of a water quality problem where additional federal support will be necessary is combined sewer overflow (CSO) abatement.

Assistance For Small Communities

Many non-complying jurisdictions are small communities. Provisions should be made to assist small communities attain compliance in circumstances where the costs of compliance are disproportionately higher than in larger communities. WEF believes a small scale grant program can be incorporated into the State Revolving Fund loan structure to help small communities. The following provisions for helping small communities also should be incorporated.

Loan Procedures

Funding procedures should be as streamlined as possible to avoid undue costs and delays. Many small communities, with limited and relatively unsophisticated administrations, have found that the burdens imposed by the current application process and inordinate paperwork outweigh the benefits of reduced interest rates.

Alternative Technologies

Section 304(d) of the Act should be revised to specify that the alternative technologies referenced therein can be utilized by smaller and rural communities instead of traditional secondary treatment facilities. Technologies such as constructed wetlands exist which can be employed to provide a much higher level of wastewater treatment than currently exists, and at lower capital and operational costs than traditional plants.

Amortization Schedules

To the extent that loan funds are utilized to finance smaller and rural community wastewater treatment facilities, the Act also should permit the issuance of loans with amortization schedules in excess of 20 years. Restrictions in the Act which limit maximum loan terms to 20 years unnecessarily increase the annual payments on loans where the useful life of the facilities being financed exceeds 20 years.

State Revolving Funds

The State Revolving Fund loan program is critical to our nation's future wastewater treatment efforts. It provides one of the largest and lowest-cost sources of public funds available to municipalities to finance these facilities. Administrative burdens imposed by the Federal government upon obtaining revolving fund loans, however, add unnecessarily to facility costs, discourage use of these funds by smaller municipalities, delay the construction of facilities, and reduce states' flexibility to allocate loan funds according to their own priorities.

The states are responsible for implementing the regulatory programs necessary to achieve the Act's goals. There is no reason to believe that the states will administer loan programs in a manner inconsistent with achieving those goals. Indeed, most if not all facilities financed with revolving fund loans will be required to obtain construction and/or operating permits from the appropriate state environmental regulatory agencies signifying compliance with the Act's requirements. There would seem to be little need, therefore, to superimpose additional Federal requirements upon the state regulatory process.

WEF recommends the following legislative measures to bolster the effectiveness of the SRF program:

Eliminate Construction Grant Requirements

Subsection 602(b) of the Act imposes many of the same requirements on projects financed through revolving fund loans that were applied to construction grants under Title II of the Act. While these conditions and restrictions may well be appropriate where grant monies are being provided, WEF believes they are inappropriate for loans made by state revolving funds.

For example, Subdivision (6) requires that all project loans be subject to review under the National Environmental Policy Act (NEPA). WEF believes that state environmental review processes are no less protective of environmental values then NEPA.

Federal Letters Of Credit

The use of Federal letters of credit (LOCs) should be eliminated. LOCs reduce financial flexibility and add administrative costs to states, while eliminating the ability of states to earn interest on unobligated funds. WEF believes that SRF capitalization grants should be viewed primarily as an aid in environmental management. As such, every opportunity should be taken to accelerate the obligation of funds to projects.

Leveraging

States should be encouraged to leverage their SRF capitalization grants. Leveraging allows states to significantly extend their SRF program while helping ensure a sound financial basis that is needed to satisfy SRF agency bond holders.

Successful types of leveraging include reserve fund leveraging, blended funds leveraging, and leveraged loans.

Project Eligibility

WEF believes each state should be free to use its own established procedures for evaluating the need for new facilities, their technical adequacy, and the requirements related to their procurement and management. Mandating the use of a Federal accounting system, Federal procurement requirements and indirect Federal oversight of these projects adds unnecessary costs to the development of each project, and prohibits deriving maximum benefit from revolving fund loans. States should be encouraged to allocate funds according to a priority system tied to the achievement of water quality and public health objectives.

Matching Funds

Section 602 of the Act should be revised to require state matching grants be in "hard" dollars which are raised or collected by means other than by borrowing funds and charging such amounts and costs against POTW borrowers. The practice of borrowing the required match money and charging it back to the borrowers aggravates the severe fiscal burdens faced at the local level.

Alternative Financing Mechanisms

Although significant Federal funding contributions have been made toward wastewater facility construction, there is still a substantial shortfall of funds for facilities and other needed water quality initiatives. EPA has estimated it will cost $20-25 billion annually just to maintain water quality at 1987 levels. Considering the extraordinary sums needed, it is essential that Congress promote financing mechanisms which encourage greater participation by the private sector in the development of pollution control facilities.

It is also important that there be a regulatory environment which encourages the use of creative financial mechanisms and structures which will leverage the capabilities of local governments to develop and maintain adequate wastewater treatment infrastructure.

WEF believes the following mechanisms should be explored as possible additional means of financing needed water quality improvements:

Tax-Exempt Bonds

The Tax Reform Act of 1986 significantly reduced the availability of tax-exempt industrial development bonds (IDBs) to finance municipal wastewater treatment and water reclamation facilities. WEF recommends that industrial development bonds issued for qualified wastewater and reclamation treatment facilities be deemed as "government bonds" and not "private activity bonds" if 95% or more of the net proceeds of such bonds are to be used to provide such facilities.

Private Investment In Facilities

WEF believes it should be national policy to encourage public/private partnerships (privatization) in all phases of environmental infrastructure, including financing, operation and ownership of facilities. Such financing of facilities through public/private partnerships is likely to occur only in a statutory and regulatory environment free from unneeded institutional or legal barriers. Unfortunately, the Clean Water Act currently places a significant obstacle in the way of such partnerships by its requirement for public ownership of wastewater treatment facilities.

The Act should be revised to eliminate provisions which deny publicly owned facilities access to private funds. The requirement for public ownership eliminates local government flexibility to recycle funds and access needed capital for water pollution control requirements through such techniques as private development and ownership, asset sales, sale/leasebacks and other similar financing techniques. Only through such mechanisms, which necessitate private ownership, can significant resources in the private sector be brought to bear on wastewater treatment/environmental infrastructure problems.

The Act should clarify that the sale of existing wastewater treatment facilities, constructed with Federal grants, to private parties (for continued wastewater treatment operation) will not require a return of grant monies to the Federal government if the proceeds of such sales are used for further wastewater facility construction or rehabilitation. The definition of "publicly owned" facilities should be revised to include facilities owned and/or operated by private parties subject to contracts or service agreements with the municipality. Such agreements should provide for municipal oversight of performance and waste treatment service to the municipality which is functionally equivalent to that which would have been provided by a municipally owned and operated system.

In all areas of private sector involvement in providing wastewater treatment needs, an adequate system of municipal and state supervision would need to be established to ensure that investments and activities are sound and in the public interest.

TESTIMONY OF GEORGE D. BARNES, JR., P.E.
- ON BEHALF OF THE WATER ENVIRONMENT FEDERATION
AND THE WATER ENVIRONMENT RESEARCH FOUNDATION
BEFORE THE HOUSE SCIENCE, SPACE AND TECHNOLOGY COMMITTEE
SUBCOMMITTEE ON TECHNOLOGY, ENVIRONMENT AND AVIATION
September 23, 1993

Mr. Chairman and members of the subcommittee, I am George Barnes, director of the Bureau of Pollution Control for the City of Atlanta. I am a civil engineer by training, and have over 30 years of professional wastewater treatment experience in both the public and private sector. I come before you today on behalf of the Water Environment Federation (WEF) and the Water Environment Research Foundation, of which I am Chairman of the Board of Directors.

The Water Environment Federation represents 40,000 professionals involved directly in restoring and protecting the nation's water quality.

The Water Environment Federation is a not-for-profit technical, educational and professional organization devoted to providing leadership and guidance in the preservation and enhancement of the global water environment. Founded in 1928, WEF has over 40,000 members, including civil and environmental engineers, scientists, wastewater treatment plant operators and managers, and others working in state and local government, federal agencies, academia, and private practice.

The Federation has long been involved in water quality research. For over 60 years we have sought to stimulate research activities, cooperate with other organizations in the promotion of research, and develop recommendations for both broad and specific research needs in the water quality and pollution control field. To this end, the Federation publishes *Water Environment Research*, a peer-reviewed environmental research journal used to disseminate fundamental and applied research in all areas of water quality and pollution control. *Water Environment Research* is considered one of the pre-eminent publications in this field.

In addition, the Federation publishes a number of "Manuals of Practice" which essentially are technical guidebooks for everything from wastewater treatment plant operations to biological treatment processes to contaminated groundwater remediation. These manuals are extensively peer-reviewed and seek to incorporate the latest scientific knowledge developed through research. The Federation also publishes a large body of public information and education materials, ranging from classroom curricula on groundwater to brochures on disposal of household hazardous waste.

WHY WATER QUALITY RESEARCH IS IMPORTANT

Research and development in the water quality field enables scientists and engineers to identify and define potential problems, estimate potential damage, and design processes to control or eliminate the problems. Research also can prevent future problems.

Environmental protection standards are designed to reduce both man-made and naturally-occurring pollution. Discharge limits, a specific type of standard, should be determined by the concentrations of substances which can be assimilated by the physical, chemical and biological cycles of nature. Setting these limits relies on a comprehensive understanding of the interaction between substances and the natural environment.

Without a vigorous, ongoing research program to study pollutants, their effects, and the technologies needed to control these effects, we cannot properly protect the environment or public health.

Without a vigorous, ongoing research program to study pollutants, their effects, and the technologies needed to control these effects, we cannot properly protect the environment or public health from the harmful side-effects of modern life.

STATE OF WATER QUALITY RESEARCH

With passage of the Federal Water Pollution Control Act Amendments of 1972, we undertook the task of making our nation's waters fishable and swimmable. This was a greatly expanded and challenging opportunity for those of us in the water quality field. We were eager to employ our scientific and engineering know-how to comply with the mandates of the new Act.

In recent years, as the nation has moved to address its conventional water pollution sources, we have found that we now must deal with increasingly subtle and complex problems associated with toxic substances. These problems are difficult to quantify and, even today, much of the technology needed to address these problems is still in the formative stages.

In addition, we continue to detect levels of pollution in ever smaller concentrations due to improvements in laboratory and analytical techniques. This can lead to the impression that our pollution problems are growing, leading to calls by the public for more stringent controls.

New research is needed if we are to sustain the water quality improvement momentum generated over the last 20 years.

Mr. Chairman, we are facing a severe problem in the water quality research area. We are at the point where new research is needed if we are to sustain the water quality improvement momentum generated over the last 20 years. But while the nation's need for research continues to grow, resources and support at all levels of government, especially the federal level, have been falling.

Funding for water quality research has fallen dramatically over the past 10 years.

For example, federal funding for practical wastewater treatment technology and process research has declined from $15.6 million annually to virtually nothing over the last 16 years. Likewise, funding for municipal water pollution engineering research at EPA's Water Research Laboratory in Cincinnati has fallen from $7.4 million in 1982 to almost zero today. Overall EPA water quality research funding has fallen from $67 million in 1980 to $28 million in 1992.

Most of EPA's water quality research funding is being used to support the development of regulations. While this is an important function of research, it has left a major gap in the development of new methods for complying with these regulations. New water quality research data has become less accessible and timely than in the 1970's. In addition, the private sector has curtailed much of its own research initiatives due to lack of resources and other reasons.

The lack of research has not only hindered our ability to make further progress in controlling pollution, but also has hurt our competitive advantage with respect to other nations in the pollution control technology field. For example, much of today's state-of-the-art wastewater residuals processing equipment such as mechanical composting, and belt and press technology, originated in Europe.

The Water Environment Federation and Water Environment Research Foundation believe we must recognize two critical elements of our national water quality research efforts:

1. **BETTER CONTROL AND REDUCTION OF CONVENTIONAL POLLUTANTS**
   We must be prepared to achieve higher levels of reduction for conventional pollutants, such as non-toxic organic substances and solids, than ever before. This means maximizing treatment methods already in use in order to assure that we are getting the most control for our money.

2. **INCREASED CONTROL AND REDUCTION OF NON-CONVENTIONAL POLLUTANTS**
   These pollutants, such as toxic substances and nutrients, are coming under increasing scrutiny. The 1987 Water Quality Act put new emphasis on controlling these pollutants, and proposed amendments currently being debated in Congress would increase that emphasis. We must determine which of these pollutants pose the most serious threat to human health and the environment, and attack those problems first.

Research must be viewed as a long-term effort to build our base of knowledge, increase our scientific understanding of water quality problems, find solutions to current problems, and anticipate future problems. To that end, research requires large investments of time and money before there is any tangible return. That investment, however, can pay off many times over in capital and operating cost savings, and in increased scientific reliability.

Research must be viewed as a long-term effort to build our base of knowledge, increase our scientific understanding of water quality problems, find solutions to current problems, and anticipate future problems.

Several years ago, the Water Environment Federation assessed the state of water quality research. Concluding that something had to be done to reverse the declining water quality research trend, WEF created the Water Environment Research Foundation in 1989 for the purpose of advancing and building the scientific and technical body of knowledge concerning water quality issues and applying this knowledge to specific water quality problems.

The Water Environment Research Foundation was created in 1989 for the purpose of advancing and building the scientific and technical body of knowledge concerning water quality issues.

With the help of the water quality profession, Congress, and U.S. EPA, WEF and the Research Foundation built a cooperative research program to address our nation's growing water quality research needs. The Research Foundation is funded primarily by a subscription-based mechanism whereby municipalities, consulting firms, industry, wastewater equipment manufacturers and others voluntarily pay an annual subscription based on their size. Currently, WERF has more than 160 "Subscribers," who in turn serve 80 million citizens in the U.S. These voluntary subscribers all recognize the importance of research to meet both present and future water quality goals.

RESEARCH NEEDS

When determining research needs, the Water Environment Research Foundation employs an extensive and exhaustive review process which includes some of the nation's best water quality research experts. This process, combined with input from the Foundation's Subscribers, guides the day-to-day operations and long-range planning of the Foundation. Research is conducted according to a five-year research and development plan, which is revised annually.

The WERF 1992-1996 Research and Development Plan provides utilities, industry, universities, scientific laboratories, government agencies, Congress, and the general public information about the latest advances in water quality research.

The WERF 1992-1996 Research and Development Plan, which we have provided to all subcommittee members, helps Foundation Subscribers anticipate scientific advances beneficial to the planning and operation of their business. It also provides utilities, industry, universities, scientific laboratories, government agencies, Congress, and the general public information about the latest advances in water quality research. The plan considers a broad array of issues and prioritizes them based on the limited amount of funding available. Current priority research areas include:

1. Water Quality Indicators
2. Transport and Fate of Toxic Contaminants
3. Surface Water Quality
4. Bioassay and Measures of Toxicity
5. Advanced Wastewater Treatment Processes
6. Effluent and Residuals Disposal
7. Risk Management and Assessment
8. Disinfection
9. Pretreatment and Source Control
10. Watershed Management
11. Biological Treatment Processes
12. Modeling Pollutent Loads
13. Air Emissions

Further information on research underway by the Foundation can be found in the "Programs in Progress" report attached at the end of this testimony.

WATER QUALITY RESEARCH LEGISLATION

WEF and WERF commend this subcommittee for taking such a substantial interest in water quality research, and for your commitment to bringing research needs to the forefront of public and congressional attention. We support the intent of your legislation to enhance water quality research and would like to provide you with some comments on its content.

Nonpoint sources of pollution are the greatest remaining threat to water quality.

We believe the attention given to nonpoint sources is well-placed. Nonpoint sources of pollution are the greatest remaining threat to water quality. Over half the known water pollution in some areas is caused by nonpoint source runoff. Nonpoint sources are a problem in both rural and urban areas.

Nonpoint pollution problems are wet weather problems primarily, and, as such, are different from the problems caused by municipal and industrial wastewater discharges. The technologies developed for treating continuous flows are not appropriate for controlling intermittent flows. Thus, secondary biological treatment is not an appropriate solution for urban or agricultural storm discharge. This is an extremely important difference which must be recognized in whatever mandates for research you develop.

Groundwater is another important area with significant research needs.

Groundwater is another important area with significant research needs. You should consider an additional point in your groundwater section. Groundwater quality is greatly affected by the nature of surrounding soils; therefore, soil research and the interaction of soil and groundwater is a critical element of controlling groundwater contamination. You also may want to clarify Section 6(H) to include the development of optimal strategies for determining sampling techniques and frequency.

The need for research on transport and fate of a matrix of waste mixtures also should be stressed. Because pollutants seldom isolate themselves in the environment, more research is needed on the interaction of mixtures of compounds and diverse chemistries.

More health effects and ecological risk research is needed in order to develop the science necessary to make good decisions.

In addition, more health effects and ecological risk research is needed in order to develop the science necessary to make good decisions. Many of our water quality standards are based upon incomplete evaluations of risk. We need much more information than is currently available. EPA's Science Advisory Board has recommended that the Agency improve its scientific methodologies and data used to assess risk.

The Water Quality Monitoring Council and a Water Quality Research Committee could provide a mechanism for coordinating research among the various federal entities with jurisdiction over water quality research.

With regard to the proposals for a Water Quality Monitoring Council and a Water Quality Research Committee, we believe these ideas have merit and deserve further consideration. They would be especially helpful if they provided a mechanism for coordinating research among the various federal entities with jurisdiction over water quality research. The research committee should closely coordinate its activities with EPA's Science Advisory Board, so that duplication of responsibilities is minimized.

Water quality research is a vital and necessary part of the work of scientists and engineers who work outside the groups identified in this proposal. Their input would provide greater perspective and diversity on these proposed bodies.

As for council and committee make-up, you should consider having some representation from additional groups such as broad-based professional engineering societies. Water quality research is a vital and necessary part of the work of scientists and engineers who work outside the groups identified in this proposal. Their input would provide greater perspective and diversity on these proposed bodies. Discussions regarding human health should include a representative from the Department of Health and Human Services. Likewise, having representation from the Departments of Defense and Energy, agencies which now have very large environmental responsibilities, may be useful.

Authorizing continued support for the Water Environment Research Foundation would help ensure the nation's research needs are met in a comprehensive and cost-effective manner.

Finally, we would like to ask for your support of the Water Environment Research Foundation. Since WERF's inception, members of Congress have expressed their faith and confidence in its mission by providing financial assistance through U.S. EPA. EPA has been a full partner in WERF's research agenda, and has ensured accountability in the use of appropriated funding. The structure of the Foundation helps ensure that research is targeted to issues of highest priority in the water quality field. We urge you to consider authorizing up to $5 million to help provide critical financial support as WERF's research agenda grows. Authorizing continued support would help ensure the nation's research needs are meet in a comprehensive and cost-effective manner, and would be consistent with the intent of the Water Quality Research Act Amendments of 1993.

CONCLUSION

Making water quality research a priority is crucial to continued success in addressing water pollution problems.

We hope we have been able to give you some sense of water quality research and the overwhelming needs facing us today. WEF and WERF firmly believe that making water quality research a priority is crucial to continued success in addressing water pollution problems. Only through the advancement of water quality science and technology will we be able to more thoroughly understand man's impact on the water environment, and to provide adequate and affordable environmental protection.

A focused and comprehensive water quality research program will enhance existing water quality efforts. It will increase our understanding of Earth's ecosystems and man's impact upon them. And it will result in new ways of preserving those ecosystems as well as ensuring the public health. We need to develop an interdisciplinary approach to water quality problems which takes into account their impacts on the air and land. We must develop and promote a new generation of sciences and technologies which are economically viable. Perhaps most importantly, we must facilitate communication and cooperation among decision makers at all levels, between government and business, and between researchers, educators, decision makers and the public. We must work together to tackle the water quality challenges which lie ahead.

Mr. Chairman, this concludes my statement. I appreciate the opportunity to appear before you today, and would be happy to answer any questions which you or other subcommittee members may have.

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Alexandria, VA

May 17, 1994

The Honorable Gerry Studds, Chairman
Committee on Merchant Marine and Fisheries
1334 Longworth HOB
Washington, DC 20515
Attn: Dan Ashe

Dear Chairman Studds:

The Water Environment Federation (WEF) submits the following in response to the questions posed to us by Rep. Fields in your April 27 letter.

1. What special consideration should be given to small communities' CWA funding needs? What about communities which are not yet served by sewer systems?

Attachment 1 is a copy of testimony presented by WEF before the House Public Works and Transportation Committee regarding wastewater treatment needs in small communities. This testimony provides a detailed assessment of wastewater issues facing small communities, options for addressing these needs, and recommended action at the federal level.

2. The President's CWA Initiative, the Senate CWA bill, and the Public Works CWA bill, all relax some of the more technical State Revolving Fund requirements. If enacted into law, how much would these measures obviate the need for increased funds for CWA needs?

EPA's 1992 Needs Survey has indentified at least $137 billion in wastewater treatment needs over the next 20 years in order to comply with requirements of the Clean Water Act. Changes in the administrative requirements of the SRF program, as outlined in WEF's position statement "Financing Water Quality Improvements" (Attachment 2), would help meet some of these needs. WEF is not aware of any research which has been done to quantify, in dollar amounts or otherwise, exactly how much these changes may obviate the need for additional funding.

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3. What are the average federal taxes, fees, or other charge currently paid by dischargers into U.S. waters? What about taxes, fees or other charges levied by states, local governments or other entities?

WEF has not collected any nationwide information on the taxes and fees paid by dischargers, or paid to state and local governments or wastewater utilities.

4. Should publicly-owned sewage treatment works be exempt from paying discharge taxes? Federally-owned facilities? State-owned facilities?

WEF does not at this time have any position on exempting public or government-owned treatment works from discharge taxes.

5. If clean water is truly a national issue and need, why are new taxes to pay for CWA requirements any more fair than increased federal appropriations.

This is a particularly relevant question in light of the growing disparity between clean water requirements and available funding. In our March 15 statement before this committee, WEF recommened that Congress and the Administration convene a national forum on clean water funding. The purpose of such a forum would be to identify funding and revenue options on which all parties could reach consensus, and which would provide for stable, predictable, and adequate long-term funding to help protect and improve our nation's waters. A forum such as this would provide the opportunity to discuss and debate the relative merits of various funding options, including new taxes and increased federal appropriations. WEF would be pleased to assist a Congressional or Administration initiative to organize and conduct such a workshop.

We hope this information is helpful to you. If you have any additional questions, please do not hestiate to contact me at (703) 684-2416.

Sincerely,

JA Thorner

John A. Thorner
Director of Public Affairs

Attachment 1

Water Environment Federation
Formerly Water Pollution Control Federation

STATEMENT OF
A. ROBERT RUBIN, Ph.D.
ASSOCIATE PROFESSOR
NORTH CAROLINA STATE UNIVERSITY

ON BEHALF OF THE WATER ENVIRONMENT FEDERATION

BEFORE THE
SUBCOMMITTEE ON WATER RESOURCES AND THE ENVIRONMENT
HOUSE COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION

HEARING ON WASTEWATER TREATMENT NEEDS IN SMALL COMMUNITIES

FEBRUARY 23, 1993

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STATEMENT OF A. ROBERT RUBIN, Ph.D.
ON BEHALF OF THE WATER ENVIRONMENT FEDERATION
BEFORE THE WATER RESOURCES AND ENVIRONMENT SUBCOMMITTEE
HOUSE PUBLIC WORKS AND TRANSPORTATION COMMITTEE
February 23, 1993

Mr. Chairman and distinguished members of the Subcommittee, I am A. Robert Rubin, Associate Professor in the Department of Biological and Agricultural Engineering at North Carolina State University in Raleigh, North Carolina.

I am here today representing the Water Environment Federation (WEF) before this Subcommittee to provide testimony regarding:

- Wastewater treatment needs in small communities and rural areas;
- Role of alternative technologies in addressing these needs;
- Experiences with approval and implementation of wastewater management facilities in small and rural communities;
- Residual management practices in these areas;
- Role of federal, state and local governments in promoting adoption, implementation, and life cycle management of alternative technologies in small and rural communities; and
- The impact of increased environmental mandates in small and rural communities.

The Water Environment Federation is a non-profit professional, educational and technical organization devoted to providing leadership and guidance in the preservation and enhancement of our nation's water resources. Founded in 1928, the Federation has over 40,000 members in 64 Member Associations, three Corresponding Associations, and seven recognized operator associations throughout the world. WEF members include environmental and civil engineers, scientists, wastewater treatment plant operators and managers, and others working in state and local government, federal agencies, industry, academia and private practice. These are the people who are responsible for implementing the nation's clean water programs.

I have over 15 years of experience in research and development of low-cost technological and institutional solutions to wastewater treatment in unsewered areas, and in the development of management, training and certification programs for individuals. My specialization is in the planning and design of affordable wastewater collection and treatment facilities in unsewered communities, remote settlements, individual homes and rural businesses and industries. My relevant experience includes:

- Research, development and implementation of alternative cost-effective collection and treatment technologies, including small diameter gravity sewers and pressure sewers, mounds, cluster subsurface wastewater infiltration systems, sand filters, surface irrigation facilities and biosolids (beneficially reusable sewage sludge) management;
- Technology assessments for U.S. EPA, World Bank and North Carolina state agencies of sand filters, small diameter gravity sewers, spray irrigation, wetlands, biosolids management and proprietary products for onsite treatment;
- Contribution to design manuals produced by WEF and U.S. EPA for alternative sewer systems, onsite treatment and disposal alternatives and land application systems; and
- Authorship of professional papers dealing with performance evaluation of alternative waste management and utilization technologies, and planning, design, construction and operation for small-scale developments.

The Water Environment Federation recognizes the unique wastewater management needs facing small communities, and has taken action to help meet those needs. We have formed a Small Community Committee to explore methods of bringing technical and other assistance to small community leaders, consulting professionals and treatment plant operators, and to further research and development of appropriate technologies geared to meet small community treatment needs. In addition, our Technical Practice Committee has published two design manuals to assist engineers in the planning and design of cost-effective facilities: "Alternative Sewer Systems" (1986), and "Natural Systems for Wastewater Treatment" (1990). A workshop entitled "New Approaches for Small Communities" was conducted at the annual WEF conference in New Orleans last September. Another workshop is planned for December 1993, and we plan to disseminate information and findings from this workshop to small communities through member organizations of the Federation.

WASTEWATER TREATMENT NEEDS IN SMALL COMMUNITIES

Thousands of small communities in the U.S. are unsewered or served by inadequate wastewater infrastructure. These communities and rural areas need improved wastewater management facilities. Many rely on individual onsite treatment systems, typically some form of a septic tank/subsurface infiltration system, to provide wastewater treatment on each property. These systems are groundwater recharging systems which rely on the soil to provide the necessary treatment. While these can be very effective treatment systems when sited, sized, installed and managed properly, inadequate codes regulating their use and poor code enforcement have allowed septic tank system failures to occur. As a result, partially treated wastewater (septic tank effluent) is directly entering surface waters and groundwater. The failures often are difficult to correct because small lots or unsuitable soils preclude the repair or replacement of the onsite system. Therefore, widespread failures often lead to calls for public wastewater management facilities to address public health hazards and mitigate environmental impairment, to protect property values and to enhance economic growth.

Implementation of public wastewater facilities in small communities is difficult because most small communities lack the fiscal and technical resources for facility construction and operation. Many are rural and unincorporated with a very limited tax base and ability to pay. Their economies often are based on agriculture, mining, unskilled labor or tourism. Family incomes typically are low, with a large proportion of the residents living on fixed incomes. The fiscal dilemma is compounded increasingly by the multitude of mandates which small community infrastructure is required to address and which compete for the scarce resources available.

In addition, the community officials are likely to be unpaid, part-time volunteers with few or no technical skills in wastewater treatment planning or operations. A recent EPA study found that 40% of governments in small communities rely completely on volunteers instead of paid staff. They may not be aware of options available to them for addressing wastewater problems, nor what they must do to get started. Available resources which could be helpful do not reach them because of the lack of effective communication channels between regulating agencies and the regulated community.

Conventional wastewater collection and treatment technologies are not always appropriate for small and rural communities. The traditional system, comprised of gravity sewers which collect wastewater from each connection for treatment at a central plant prior to discharge into a surface water, was developed for use in large urban areas with high development densities. In small communities, however, the small number of users and the low development densities result in prohibitively high per capita costs for system construction, operation, and life cycle management. In some cases, the construction costs of a traditional facility have exceeded the total assessed value of the community. Yet, it is this facility concept that most often is applied.

Selection and designation of appropriate technologies must be a concern when dealing with small communities and rural areas, as economic viability is a paramount concern. When user charges for wastewater management exceed 1% of an average family's annual income, the family's standard of living is likely to be impacted adversely.

For example, the median annual income in most small communities in North Carolina is $15,000 to $20,000. At a 1% limit, the user charges should not exceed $200 per year. However, in one previously unsewered North Carolina community (Waxhaw), a user charge of $420 per year was proposed for a conventional collection and treatment system. An innovative collection and treatment system ultimately was selected, and user charges have averaged $240 per year. By comparison, the state-wide average for all municipalities and communities is around $360 per year. With such high costs, small communities have difficulty in paying the costs to build and operate systems. Appropriate technology with flexible financing is critical to the development of effective wastewater management plans for small communities and rural areas.

The high user charges usually are due to the costs of constructing the collection system. While the area to be served by sewers is sometimes an issue, the decision to construct sewers rarely is questioned. Yet, construction of sewers is the single largest cost item in conventional facilities. In urban areas, where the average length of sewer per connection is less than 15 feet, sewer construction accounts for more than 65% of the total annual costs of the wastewater facility. In small communities, the average length of sewer per connection is 6 to 7 times the urban average. As a result, sewers typically are installed only in the most densely developed area of the community, leaving residents outside the area to fend for themselves. Increasingly stringent water quality standards also are forcing small communities and rural areas to evaluate more costly treatment alternatives which include advance filtration and nutrient removal.

While financial assistance can reduce the impact of the costs of facility construction, the annual cost of operation and maintenance of a conventional secondary, advanced secondary or tertiary treatment plant can represent the greatest single cost to the users over the life of the project. The more stringent the water quality standard, the greater the operational costs and the greater the financial burden on local rate payers.

The financial incentives are greater to design and construct larger systems. Consequently, small communities have been left on their own, and they are floundering. They must meet the same environmental standards as larger communities, but they and their consultants often are led to utilize costly and inappropriate technologies in meeting those standards because of mistrust of alternative technologies.

Although the user charges for small community facilities are significantly higher than in metropolitan areas and the financial capability of the communities to pay is less, small communities have received the lowest priority for financial aid. This is because past financial assistance has gone to larger dischargers whose discharges posed a relatively greater risk to the environment. Yet when total pollutant loading into the environment is calculated, the residents of small communities and rural areas do discharge proportionately similar constituent loads as their urban counterparts.

In North Carolina, where 55% of the population lives in rural areas and small communities, the actual input of pollutants into the environment actually is greater from these areas than from metropolitan areas. Since 1978, North Carolina has received $1.6 billion in federal assistance for wastewater management projects, 65% of which went to projects in metropolitan areas. According to recently collected data from U.S. EPA, $3.9 billion in needs remain, of which 50% will be required to address small community and rural area needs.

In summary, wastewater treatment needs in small communities include:

* Financial aid in planning, design, construction and operation of wastewater management systems (especially if stringent water quality limits force untenable cost burdens on local rate payers);

* Cost effective collection and treatment technologies designed to protect public health and maintain or improve environmental quality;

* Effective facility management plans which include administration and operation/maintenance, as well as adequate training programs;

* Evaluation of the appropriateness of environmental standards and facility design criteria for small communities;

* A comprehensive outreach program to inform community leaders of their options and to assist them in the planning process, financial planning and financial aid procurement;

* A training and certification program to insure system operation and maintenance throughout its life cycle; and

* Methods for managing residuals.

ALTERNATIVE WASTEWATER TECHNOLOGIES

Historically, the regulatory and engineering communities have focused upon the wastewater treatment needs of major metropolitan areas and larger communities. As a result, the wastewater collection and treatment facility with which we are most familiar is conventional gravity sewers conveying wastewater to a mechanical publicly-owned treatment works (POTW). With the introduction of indoor plumbing, collection sewers patterned after storm sewers were constructed. However, land application or the use of soil materials (sand filters) were still used for treatment. Many communities in the western U.S. utilized treated wastewater for irrigation. As wastewater flows and land values increased, mechanical plants became a necessity because they did not require large areas with specific site criteria. Today, codes and regulations are written with the "modern" collection and treatment technologies in mind. Traditional training for design engineers largely ignores "low tech" alternatives. It has been only in the last 15 years that alternative technologies have been revived from the past or developed for application in small communities.

Today, several lower cost or more cost-effective options exist that may be applied effectively in small communities and rural areas. These include collection technologies and treatment technologies which provide the equivalent of secondary treatment. Many of the treatment technologies are based on "natural" systems which rely on the assimilative capacity of the natural environment for wastewater treatment and renovation. As such, no one alternative is effective for meeting every need because the characteristics of each community vary. Therefore, the various alternatives represent the "tools" in a toolbox which planners, engineers, operators, local officials and regulatory agency personnel can utilize to address specific wastewater treatment needs and goals.

The town of Stovall and the unincorporated community of Terra Cia in North Carolina illustrate the need for encouraging the use of alternative technologies. They both have a clear the need for wastewater treatment facilities, but the costs associated with conventional collection and treatment to very stringent water quality standards will preclude construction of facilities in these communities. By utilizing alternative collection, treatment, and wastewater management technologies, however, a cost-effective system could be designed and implemented.

Septic Tank System Management

Reducing the extent of sewers needed by decentralizing treatment has a significant impact on facility costs. The most decentralized system is one where each building is served by an individual septic tank system. Properly maintained onsite systems could eliminate the need for central sewerage. It is difficult for some to imagine individual septic tank systems as being a permanent solution when they often are the reason that wastewater facility planning is initiated. However, the reason for the failure of most onsite systems is the lack of effective management, either through inappropriate application of technology or lack of maintenance. Conventional sewerage systems are designed by qualified engineers and operated and maintained by trained personnel. If malfunctions occur, it is the responsibility of these personnel to correct the problem. Septic tank systems, on the other hand, traditionally have been designed based on outdated codes and operated by untrained owners. Professional management rarely is provided.

Septic tank management includes not only the hardware and leach field, but disposal of the residual material (septage) which accumulates in septic tanks and requires periodic removal. New federal guidelines from EPA spell out management standards for all domestic sewage sludge and septage. Unfortunately, many small communities are unaware of the new Part 503 regulations and will not be in compliance when the standards become effective. Even those who do receive information may not be able to meet the requirements of the regulation, which will require expensive testing. Stabilization and conditioning also will be required in order to beneficially reuse septage and sludge.

Septic tank systems do not create the need for public wastewater facilities --

lack of effective management does. Septic tank systems and their alternatives are legitimate wastewater treatment systems. For too long we have considered them "interim" facilities which should be abandoned when sewers arrive. But many communities cannot afford, or are unwilling to pay, the cost of central sewerage. A change in technology may not be the answer if cost-effective facilities are to be constructed. Rather, a change in the level or nature of facility management may be all that is needed. New physical facilities come at a high price; new management operations may not. Effective management (public or private) of onsite facilities could ensure that appropriate alternatives are utilized and that timely and appropriate maintenance is provided.

Stinson Beach, California is located in an environmentally sensitive shellfish area and bird sanctuary. In the late 1970's the community was ordered to stop using septic tanks due to contamination of shellfish beds linked to the septic systems. Plans were drawn to install a conventional wastewater collection and treatment system, but opposition arose to the estimated $425 per year cost to rate payers. As an alternative, the local water district came up with a plan to institute public management of the septic systems to correct malfunctions and ensure timely maintenance. The plan was implemented, and subsequent water quality monitoring has shown it to be successful. The cost to the 675 homeowners is $155 per year in user fees and $96 per year in property taxes, with construction and repair costs paid directly by the owners.

Statewide onsite maintenance programs also exist. In the State of North Carolina, a program was established recently to train and certify operators of onsite systems. All privately owned onsite systems in the state are classified according to the complexity of the system design. Operating permits are required for those systems which utilize a sewage pump, and minimum maintenance inspections are specified for each category. The maintenance must be performed by certified operators. With this program, future failure problems could be prevented, thus avoiding the necessity for central sewerage. To date, 650 individuals have been trained and certified. The program involves the cooperative extension service, state training agencies and certification commission, and relevant regulatory agencies.

Alternative Sewer Systems

Where individual onsite systems are not feasible because of small lots or difficult site conditions, the wastewater must be collected from each property for treatment at a remote site. Construction costs of conventional gravity sewers, which are designed to permit the wastewater to flow down a sloping pipe under the force of gravity, often are prohibitive in small communities because of excavation and material costs necessary to bury the large diameter pipes with straight alignments and uniform slopes between manholes.

Alternatives to conventional sewers for low density developments have been designed. They differ from conventional sewers by changing the motive force (the force which moves wastewater through the system) and/or the character of the wastewater collected to reduce excavation and pipe costs. The most commonly used alternatives today are pressure, vacuum and small diameter gravity sewers.

Pressure sewers use positive pressure created by small pumps at each connection rather than gravity to convey wastewater through the sewer mains. This method allows the mains to be installed at a constant depth rather than maintaining uniform downhill gradients as required by traditional gravity sewers. By providing pretreatment at the connection to remove trash, grit, and other settleable solids, smaller diameter pipes (2-6 inches) can be used and installed. These pipes can be installed around existing obstructions in the path of the sewer. Small pumps are installed at each connection, usually on the property served, to pump the wastewater into the mains. Grinder pumps often are used because they macerate solids in the wastewater to create a slurry much like that of a kitchen sink disposal, thus preventing clogs in the smaller diameter pipes. Another option is to use septic (or interceptor) tanks, which allow solid material to settle out, and then pump the wastewater into the mains by means of effluent pumps. These systems are known as septic tanks effluent pumping (STEP) pressure sewers.

Vacuum sewers are similar to pressure sewers in that wastewater is conveyed by a difference in pressure rather than by gravity. The vacuum pumps are located in a central station with vacuum interface valves located at each connection. Raw wastewater, rather than settled wastewater, enters the collection main at the interface valve. Raw wastewater accumulates behind the valve until, after reaching a set volume, the valve opens and the wastewater moves forward, propelled by the difference in atmospheric pressure behind it. The slug of wastewater travels to the next interface valve, where the process repeats itself. In this manner the wastewater reaches a central vacuum station from where it is pumped by mechanical means to a treatment facility.

Small diameter gravity sewers are similar to pressure sewers except that wastewater flows by means of variable or inflective gradients (alternating between downhill and uphill flow) instead of by mechanical pumping. Liquid follows an overall negative gradient from sources to the ultimate treatment facility, or to an interceptor sewer and then to the treatment facility.

Table 1 describes the characteristics of each of these and Figures 1-3 illustrate their construction. Several hundred alternative sewer systems are operating successfully around the U.S., Canada, and Australia with reported cost savings of up to 50% of conventional gravity sewers.

Natural Systems for Wastewater Treatment

One major difference between "natural" systems and conventional systems is the reliance on the land to treat and renovate wastewater. Maximizing the use of existing resources in the community can minimize the cost of treatment facilities. One resource that small communities usually have that urban areas do not is land. Utilizing the assimilative capacity of the local environment rather than concentrating the wastewater in a small area and injecting energy through mechanical means will reduce the costs of treatment. Natural systems typically require fewer and less skilled operational staff, consume less energy and produce lower volumes of residuals than do conventional mechanical or aerobic facilities. They also can produce higher quality effluents.

Natural systems utilize either soil or specialized aquatic environments. Soil-based systems include subsurface infiltration (septic tank systems or cluster systems), slow rate land application (irrigation onto a vegetative surface such as pasture, cropland or forest), rapid infiltration (flooding of shallow basins) and overland flow (sheet irrigation of vegetated slopes). Aquatic systems include stabilization ponds (artificial ponds), floating plant systems and natural or constructed wetland systems. Although these systems have been demonstrated to offer cost-effective treatment in many localities, the application of any one of these is limited by site characteristics and climate. Their application also is limited by the unfamiliarity with alternative technologies of many in the consulting field.

Mayo Peninsula on the shores of the Chesapeake Bay in Anne Arundel County, Maryland is a good example of the use of natural systems for wastewater treatment. This eight square mile area containing 2300 homes is served by a decentralized wastewater facility which includes individual septic tank systems, cluster subsurface infiltration systems and a communal system using artificial and natural wetlands for treatment. This communal system collects septic tank effluent from a large number of homes through pressure sewers which convey the wastewater to a central facility for treatment by sand filtration bulrush/cattail wetland, peat wetland and finally a natural offshore wetland (Figure 4). Through this process, the wastewater is nearly completely reclaimed at a capital cost estimated to be $12 million less than conventional treatment. In addition, the natural environment is preserved and enhanced.

In the Chowan River Basin of North Carolina, all municipal wastewater discharges to surface waters were eliminated through construction of municipal wastewater irrigation facilities, which applied the treated wastewater to pasture and forest lands. The total costs of the facilities was 25-50% less than conventional treatment and they eliminated all nutrient contributions to the surface waters. The recycling of municipal wastewater through the plant/soil system is an appropriate alternative for these communities. It keeps operating expenses and overall treatment costs reasonable, and helps them comply with the tenets of the Clean Water Act to eliminate the discharge of pollutants.

Sand Filters

Sand filters are similar to other natural systems in that natural materials and processes are used for wastewater treatment. They consist of beds of medium to coarse sand over which settled wastewater is applied. Biological treatment of the wastewater occurs as the waste percolates through the sand bed. Effluents which exceed secondary treatment standards are achieved with little power consumption and operator attention. Sand filters have a long history of successful performance, but, until recently, they were a technology forgotten as they were abandoned for mechanical plants. Hundreds of small communities and rural schools in the U.S. are now using this technology. Experience has shown them to be trouble-free, providing advanced treatment levels at reasonable construction and operation costs.

Water Conservation

Reducing the amount of water to be treated is an alternative often overlooked. Until recently, water conservation could not be implemented successfully because of the lack of appropriate plumbing fixtures. Today, however, quality products are available. Ultra-low volume flush toilets have been shown to reduce wastewater flows by 40-70%. Composting toilets eliminate toilet wastes altogether. The remaining wastewater can be recycled for toilet flushing or for irrigation of greenhouse plants. Water conservation is just emerging as a viable solution to wastewater treatment problems and needs further research.

An ongoing study by the Hatteras Water Association in Buxton, North Carolina is finding that water demand can be reduced 20-30% with a water conservation program. This private association is benefitting from demand reduction. Although revenue has declined, reduced demand has enabled the association to meet all of the water needs in its service area.

DEVELOPING AND IMPLEMENTING ALTERNATIVE TECHNOLOGIES

Development of alternative technologies is slow and difficult. No national program exists currently with a goal to develop effective and affordable wastewater treatment alternatives suitable for small communities. Therefore, the development of new technologies springs largely from individual efforts that often are underfunded and lack adequate peer review.

The 1977 amendments to the Clean Water Act attempted to provide incentives for development of innovative technologies and implementation of proven, but seldom used, alternative technologies. A 10% construction grant bonus was given to portions of projects which included technologies qualifying as innovative or alternative (I/A). The program accepted most of the risk by providing a 100% modification or replacement grant if the technology failed to perform as designed within two years of operation. The majority of these funds were used by the large municipalities because they were perceived to be the largest contributors of pollutants. Because of the small size of their discharges, small communities were not thought to be a good use of I/A funds.

Application of I/A funding allowed the town of Waxhaw, North Carolina to develop an alternative collection and slow rate irrigation system at an average household cost of $19/month. The cost per household under the original recommendation of the consultant using conventional collection and treatment technology was estimated at $36/month.

In the 1981 amendments, the funding incentive was increased from 10% to 20% and a small community set aside was established. The set aside obligated rural states to reserve 4% of their construction grant allocation for implementation of alternative technologies in small communities. This I/A program was successful in implementing alternative technologies and raising the awareness of design engineers and the public about the availability of non-conventional technologies for small communities. Unfortunately, the program was terminated with the phasing out of the federal construction grants program in 1990.

Outside of the construction grants program, the U.S. EPA Municipal Environmental Research Laboratory funded research to develop and demonstrate alternative technologies for unsewered areas. These funds were responsible for the development of alternative onsite system designs for use in areas with soils unsuited for the conventional septic tank system, demonstration of alternative sewer technologies and assessments of several other treatment technologies. However, these funds were eliminated from the budget of U.S. EPA by 1984 and the program staff disbanded. This is most unfortunate when one realizes that approximately 1/3 of the U.S. population lives in unsewered areas.

The lack of funds has made implementation of public wastewater facilities in small communities difficult. First, small communities are suspect of alternative technologies. Often, the alternatives are perceived as "second class" or "experimental." As such, the communities are reluctant to spend their limited funds for design and implementation. Yet, they cannot afford conventional facilities. Another disincentive is that planning and design costs frequently are higher than those for conventional technologies with no guarantee of project success. Further, regulatory agencies and codes lack the flexibility to readily accept unfamiliar technologies, which creates delays and increases design costs.

Small communities are not completely without help. The State Revolving Fund (SRF) loan program, which has replaced the Construction Grants program, provides low-interest loans for wastewater facility construction. The program rules for establishing funding priorities are more flexible than the previous grant program so that assistance can more easily be given to small communities at the state's discretion. The Farmers Home Administration has a low cost loan and grant program for qualifying low income communities. Some states, such as Wisconsin, also provide low cost loans or grants from state funds in hardship cases. The Department of Housing and Urban Development administers the Community Development Block Grant program, which is directed toward low and moderate income communities. These block grants may be used for a variety of projects, including sewer construction. Funding in each of these programs, however, is limited and falls short of actual needs.

Non-monetary assistance also is available. The U.S. EPA Small Flows Clearinghouse is a resource for technical and non-technical information regarding wastewater facilities planning, design, operation and performance in small communities. U.S. EPA also has published design manuals including "Onsite Wastewater Treatment and Disposal" (1980), "Land Treatment of Municipal Wastewater" (1981), "Municipal Wastewater Stabilization Ponds" (1983), "Constructed Wetlands and Aquatic Plant Systems for Municipal Wastewater Treatment" (1988), "Alternative Wastewater Collection Systems" (1991), and "Wastewater Treatment in Small Communities" (1992).

Additional assistance is available from state cooperative extension services and private, non-profit associations through programs such as the Small Towns Environment Program, sponsored by the Rensselaerville Institute in New York, and the Water Environment Federation's Technology Research and Inquiry Network.

HOW FEDERAL AND STATE GOVERNMENTS CAN HELP

Outreach

When faced with the need to upgrade their wastewater facilities, many small communities feel helpless. Their first concern is cost. They are not aware of what financial aid programs may be available nor how to utilize them. They are afraid to hire someone to help because that, too, will cost. If they try to pursue a solution on their own, the paperwork can become overwhelming. Further, they are not comfortable with alternative systems because they are perceived as untested or half-way measures. Thus, they often are frightened into inaction.

Better guidance must be given. Programs must be targeted specifically for small communities. Their options and required courses of action must be clearly presented to them at the time they are faced with the issue. Community officials are part-time volunteers that are not always free to attend general informational meetings. Direct communication is needed at the time compliance orders are issued. In many states, this will require close coordination between agencies since septic tank systems are usually regulated by health departments, while water quality issues are regulated by environmental protection departments. In unsewered communities, failing septic tank systems are usually the cause of the compliance order. Informational brochures should be prepared for inclusion with compliance orders, and agency staff should be made available to meet with officials in their community to describe their options. Local contacts and peer match lists should accompany these orders so as to provide local officials with all necessary information needed for compliance.

Financial Aid

The resource small communities lack most is money; money to construct the facility and money to manage it. Life cycle management is a critical and costly issue. Financial aid programs are needed if compliance with water quality standards is to be achieved. Financial aid programs traditionally have provided grants to communities for construction, but not operation. There are several examples of wastewater facilities being constructed with grant support that were too costly for the community to operate. Ability to pay for specified technology must be taken into account. The Farmers Home Administration loan program bases any grant amount on the annual income of the community. However, funds are provided only during the construction phase. Though planning and design costs are reimbursable, the community is responsible for these costs until that time. This can be frightening in the absence of a secure funding source.

The State of Wisconsin has established a hardship grant program that is proving to be successful. Communities qualify for a low or no interest loan and/or grant based on the community's ability to pay. The basis of the assessment is the average annual family income and the total assessed value of the property in the community in relation to the estimated user charge for operation and maintenance of the facility. Funds are provided in advance of planning and design to relieve the community of obtaining any commercial loans until project implementation. Such a program may provide a good model for federal or other state programs.

Public funding of community facilities has required that the recipient be a public entity. This has inhibited the privatization of these facilities for efficiency of administration and operation and for economies of scale. Most small communities do not have the personnel or skills to administer, operate or maintain the facility after construction. Privatization may be an answer. Prior to 1986, privatization was gaining momentum, but the Tax Reform Act created disincentives for privatization. Modifications to tax codes could encourage long term investment in rural infrastructure and reduce the overall cost of government. Changes in funding requirements to allow public/private partnerships need consideration also.

Finally, the paperwork with financial aid programs needs to be reduced. Not only is it overwhelming to the grantee, but it also is overwhelming to the small local contractor. Larger contractors located outside the community, and usually with higher overheads, are the only ones that typically compete for projects receiving grants-in-aid. This adds to the high per capita costs in small communities.

Regulatory Agency Flexibility

There are as many as 800 different environmental compliance issues that can apply to small communities. Many of the regulations which deal with these issues were developed primarily for densely developed areas where risks to the environment are significant. However, they are applied uniformly to all communities. Uniform application may not be appropriate. The appropriateness of standards established in water quality regulations in small community settings should be evaluated. If inappropriate, flexibility should be built into the regulations to account for the significance of the potential environmental risks.

Similarly, design guidelines for wastewater facilities were written for urban conditions. Onsite systems are not considered to be a legitimate alternative, sewers are designed for peak flows experienced in metropolitan areas and industrial discharges, and wastewater treatment options do not include non-mechanical alternatives. When facilities are proposed that do not follow the established guidelines, approvals are difficult. Approving agencies need to be more accepting of alternative technologies. Design codes need flexibility.

Regulatory agencies need to be better informed about the technologies so that they are comfortable with them. Cost-effective, "low tech" alternatives need to be better promoted and encouraged. Regulatory agencies cannot, by law, approve facilities which do not meet water quality standards. As they are not comfortable with more cost-effective technologies for small communities and rural areas, inaction can result while water quality continues to be degraded.

Regulatory agencies also must recognize that small communities face a whole host of environmental management mandates, including water quality, solid waste, and drinking water. These mandates compete with each other for the scarce local funds available. Regulatory agency personnel and system managers must work cooperatively to establish realistic time frames for achieving compliance.

Research/Demonstration Program

Thirty percent of the U.S. population is unsewered. Thirty percent of all domestic wastewater in the U.S., representing over 3.5 billion gallons per day, is treated by onsite systems, most of which rely on soil and groundwater recharge for treatment and disposal. Yet, no federal funds are directed specifically for studies to develop effective wastewater management in unsewered areas. What research is done is done largely on the local level with little or no knowledge of what others have done or are doing. Much misinformation is developed and propagated. We spend much of our time traveling the same paths, many of them dead ends.

National direction is needed to develop strategies to investigate and develop wastewater technologies for small communities. Research and demonstration funds also are needed. What is acceptable performance? Can conventional technology achieve it and be affordable? Are other alternatives equally effective? What are they and how must they be designed and managed? Are existing environmental protection laws and codes appropriate for small communities? If not, how should they be changed? What is the supporting documentation and rationale for the changes? These are just some of the questions that need to be answered. Without direction and money, they may not be for some time to come.

Direction and priorities should be developed, implemented, and evaluated through a process involving state and federal environmental and education agencies, cooperative extension services, professional societies, and non-profit associations.

CONCLUSION

Small communities face many difficulties in complying with environmental regulations. They have been largely neglected by the regulatory agencies and funding programs of the past, yet they are the poorest in resources. The quality of life, property values and economic growth in these communities are inhibited by the inability to upgrade their facilities. They need help. In closing, I would like to call your attention to four specific areas where I believe we can make a difference in helping small communities meet their wastewater treatment needs.

First, **both state and federal regulatory agencies need to take extra effort to help small communities address their wastewater treatment and residual management needs.** This includes putting more effort into providing technical and financial assistance, helping community leaders understand what is required of them under environmental laws and regulations, and making internal adjustments which facilitate and encourage the use of innovative and alternative technologies where appropriate.

Second, **there needs to be better coordination between the relevant local, state and federal agencies which play a role in addressing small community wastewater needs.** With limited financial resources, every dollar must count toward meeting these needs. Duplicative and contradictory efforts must be eliminated. Only through a coordinated and cooperative effort can agencies successfully reach out to small communities and provide them with the assistance they need.

Third, **every possible funding option should be made available to help small communities.** States should be encouraged to set aside funds through their State Revolving Fund or other mechanisms. Congress must address tax and regulatory disincentives which discourage small communities from obtaining private sector assistance.

Finally, **the federal government must take the lead in promoting and facilitating research on wastewater treatment and residual management technologies which can help small communities.** The federal government is the only entity with the resources and wherewithal to assess and coordinate research on a large scale. Research needs include new collection system technology, nutrient removal, groundwater impacts of land-based septic systems, and new biological treatment processes. Monitoring of existing sites and extensive data collection and analysis should be a key component of research efforts.

The Water Environment Federation would welcome the opportunity to work with this subcommittee in seeking solutions to the difficult problems small communities face in meeting their wastewater treatment needs.

I appreciate the opportunity to appear before you today, Mr. Chairman. This concludes my testimony.

CHEMICAL
MANUFACTURERS
ASSOCIATION

WRITTEN STATEMENT

OF

MR. SEAN T. CRIMMINS

VICE PRESIDENT AND GENERAL TAX COUNSEL

ASHLAND OIL COMPANY

ON BEHALF OF

THE CHEMICAL MANUFACTURERS ASSOCIATION

BEFORE THE

HOUSE MERCHANT MARINE AND FISHERIES COMMITTEE

SUBCOMMITTEE ON ENVIRONMENT AND NATURAL RESOURCES

ON

H.R. 2199

MARCH 15, 1994

2501 M Street, NW
Washington, D.C. 20037
202-887-1100
Telex 89617 (CMA WSH)

The Chemical Manufacturers Association (CMA) appreciates this opportunity to address the Subcommittee on Environment and Natural Resources on H.R. 2199, which provides revenue-raising measures including taxes on wastewater discharges to fund the purposes of this legislation.

CMA is a nonprofit trade association. Our member companies represent more than 90 percent of the productive capacity for basic industrial chemicals in the United States. In 1993 the U.S. chemical industry was the nations largest exporter and today the industry provides 1.1 million high-wage, high-tech jobs for American workers.

CMA opposes H.R. 2199 for several reasons. First, the proposed excise taxes unfairly target the chemical industry. Second, these taxes will be extremely burdensome and will damage the international competitiveness of U.S.-based manufacturing and agriculture. Finally, this bill does not adequately assess the cumulative impact of environmental taxes and compliance costs on American industry.

The taxes proposed in H.R. 2199 unfairly target the U.S. chemical industry which has already spent billions of dollars to reduce the impact of manufacturing operations on water quality in this country. According to U.S. Census Bureau data, the chemical industry is already spending almost $2 billion annually to control water pollution. These expenditures are achieving dramatic results.

These new taxes would be especially damaging to the industrial sector in general, and to the chemical industry in particular. For the U.S. chemical industry, the added costs could reach $1.85 billion annually and could produce a direct loss of 3,000 high-wage jobs in the chemical industry. In 1993, the industry had record exports of $45.1 billion and a trade surplus of $16.4 billion. If the proposed taxes were imposed, the ability of the chemical industry to compete in global markets would be greatly damaged.

Additional taxes will increase the cost of U.S.-based production relative to foreign-based production, and damage the international competitiveness of U.S. manufacturing and agriculture. In addition, the taxes on pesticides and fertilizer would lower farm incomes and the earnings of the 1.7 million Americans engaged in the farm sector.

U.S. tax changes must not be viewed in isolation. Raising U.S. taxes only increases the tax burden of U.S. exports in world markets and the corresponding advantage of imported products in the United States. We do not simply oppose new taxes; we specifically oppose taxes that harm our competitiveness. In this respect, CMA has testified on several occasions in support of alternative tax reforms like the invoice credit value-added tax that could increase overall revenues and enhance the international competitiveness of U.S.-based manufacturers and the American jobs they provide.

Under the General Agreement on Tariffs and Trade (GATT), the U.S.-Canada Free Trade Agreement, and the North American Free Trade

Agreement (NAFTA), there is no practical means to neutralize the harmful effects of the proposed taxes on the international competitiveness of U.S.-based production by applying similar taxes on U.S. imports of agricultural or finished manufactured goods. In effect, the excise taxes provided in H.R. 2199 would subsidize imports, penalize exports, and add to an already large U.S. trade deficit.

In many cases, intake water used by our industry has no contact with the manufacturing process and is used for cooling purposes. Intake waters often contain naturally occurring contaminants that would be subject to tax under the bill. As a result, a company would be inequitably taxed twice, first on intake water and again when that water discharged. Moreover, if the company manufactures industrial biocides, H.R. 2199 would tax this single use of water yet a third time.

The outstanding record of the chemical industry in improving water quality over the past 20 years is irrefutable. The chemical industry is proud of this record of achievement. Based on data reported in EPA's Toxic Release Inventory, the chemical industry alone has reduced discharges of toxics to surface waters by 77 percent during the 4-year period between 1987 and 1991. Moreover, EPA's 1990 Water Quality Inventory identified U.S. industry as the source of pollution for less than 10 percent of the impaired waters in the United States.

The principal impact of the excise taxes in H.R. 2199 will fall on those industries that already are paying very heavy environmental costs and taxes. For example, the chemical industry now pays $4.9 billion annually for pollution abatement and control. During the 1990s, these costs are expected to double.

In addition, the chemical industry today pays well over $300 million each year for the Superfund chemical feedstock taxes and the broad-based corporate environmental tax. The new taxes of H.R. 2199 would cost the chemical industry almost six times that amount. Their added burden threatens the ability of our industry and other manufacturers like iron and steel, oil refining, pulp and paper, to compete with foreign-based production. In addition, these taxes would also produce major cost increases for non-manufacturing industries like agriculture and electric utilities that would also have great impact on consumer prices.

The chemical industry is proud of its environmental record, including the promotion of safe transportation of hazardous materials. We are also proud of the private programs that we have undertaken in the public interest to minimize the consequences of incidents involving hazardous substances. A critical element of any hazardous materials response is the availability of timely and accurate information and expertise on how to deal properly with the release. For 22 years CMAs Chemical Transportation Emergency Center (CHEMTREC®) has provided specific product information to regional, state, and local emergency response teams throughout the United States and Canada.

Moreover, CMA and its member companies actively maintain a leadership role in providing training and assistance to emergency response teams. Over the last eight years almost three quarters of a million emergency responders have taken advantage of CMAs library of training materials. In addition, the chemical industry has provided valuable public service through its Responsible Care®. initiative, hands-on emergency response training programs, and numerous other industry programs to address public and industry concerns. CMA is continuing to expand and to improve these programs to meet current and future needs.

CONCLUSION:

Over the past two decades, CMA has actively participated in developing effective and efficient national programs to improve the environment. Our member companies have invested billions over that period to implement improvements in water quality. When Congress proposes taxes to improve the environment, that objective must be assessed in the light of our national revenue, trade, and competitiveness policies. However well-intended, new environmental taxes deplete industry funds and damage the international competitiveness of U.S.-based enterprises. We, therefore, urge the Subcommittee on Environment and Natural Resources to reject the taxes initially proposed in H.R. 2199.

Responses to Questions for the Record from Representative Fields
from Chemical Manufacturers Association

1. How do the taxes in H.R. 2199 compare to fees charged under the CAA? To Superfund?

States are currently in the process of developing their permit fee programs under the Clean Air Act Amendments of 1990. A direct comparison of these fees to those proposed in H.R. 2199, therefore, is not available at this time.

Under Superfund, feedstock taxes and broad-based corporate environmental taxes are applied to industry to pay for the clean-up of so-called "orphan" sites. Today, the chemical industry pays well over $300 million each year for the Superfund chemical feedstock taxes and the broad-based corporate environmental tax. The new taxes of H.R. 2199 would cost the chemical industry almost six times that amount.

2) What are the average federal taxes, fees, or other charges currently paid by dischargers into U.S. waters? What about taxes, fees or other charges levied by states, local governments or other entities?

Many states already charge fees for National Pollutant Elimination Discharge System (NPDES) permits. The amount of these fees varies from state to state and the basis on which these fees are calculated also varies from state to state. Sometimes these fees are based on annual flow rates; other times on the amount of organic material discharged; still other times on a combination of these types of bases. CMA is not familiar with any states that use toxic weighting factors as the basis for determining fee amounts as is proposed in this bill.

CMA does not have sufficient information to determine the average amount of permit fees paid by dischargers under state permit fee programs. As examples, however, one company in Lousiana currently pays $90,000 per year in state NPDES permit fees. Another company there pays on the order of $40,000 per year. These amounts probably reflect the high end of the scale.

CMA supports permit fee programs where fees collected from permitted sources are limited to the amount needed to cover the costs of issuing and administering permits. Collecting fees from industry in excess of these amounts is asking industry to pay for more than its fair share.

3) H.R. 2199 taxes discharges into "water". This would include ground water discharges, as well as discharges into nonnavigable waters. Are these types of discharges measured now? Is it possible to measure them? Would you consider spills or other accidental releases to be covered?

Industrial facilities are required to monitor their permitted discharges to surface waters in order to demonstrate compliance with permit limits. Therefore, discharges to surface waters of pollutants that are controlled in permits are measured now.

Discharges to ground water would be measured if these discharges are regulated under the Safe Drinking Water Act's underground injection control program. Other discharges to ground water may be reported under CERCLA's accidental release reporting requirements or under the Emergency Planning and Community Right-to-Know Act (EPCRA). Under EPCRA, some industries, including the chemical manufacturing industry, are required annually to report releases of more than 300 toxic chemicals to air, water and land, . Under EPCRA, if certain reporting thresholds are met, both catastrophic events that result in releases to ground water and other releases to ground water could be reported. This does not mean, however, that these releases are necessarily measured. Annual reports under EPCRA may be made on the basis of estimates of releases.

If this bill is intended to tax discharges to "water" and if that term is not defined to mean only navigable waters, then this bill presumably would apply taxes to spills or other accidental releases that may reach ground water. Spills are typically found quickly and remediated quickly. Would this bill only tax the residue that may reach the ground water or the entire spill amount? Issues like this are not clear.

4) The discharge taxes contained in H.R. 2199 are assessed by calculating the amount of chemical pollutant discharged, and the chemicals are divided into five groups, with the tax per pound increasing as you move from Group 1 pollutants to Group 5 pollutants. First, are these pollutants now measured by dischargers? If not, how will these measurerments be taken? Who will pay for these readings? Second, what is the basis for the groupings -- risk to human health? Harm to aquatic organisms? Would EPA change these groupings? Third, with the state of technology advancing each day, we may be able to measure new chemicals or measure chemicals more accurately. In addition, science may find that some of these chemicals are more or less harmful over time. Would you support a provision which recognizes these factors to allow for adjustment?

As a preliminary matter, CMA opposes taxes that harm industry's competitiveness. CMA opposes, therefore, taxes on discharges to water on any basis. The relative toxicity of materials is irrelevant to the issue of whether such discharges should be taxed.

Further, these taxes are inequitable, because they will fall on those very industries that are already paying very high costs to meet the Clean Water Act's requirements. Existing controls on industrial discharges have achieved dramatic reductions in water pollution from industrial point sources. Industrial discharges are attributed now with less than 10% of remaining water quality problems and existing CWA controls ensure continuing improvements. Taxing these same industries to pay for the municipal sewage treatment plant construction and other State capital projects is not fair because there no relationship between industrial discharges and the need for these projects. Where there is a relationship, i.e. where industries pretreat and then rely on municipal sewage treatment plants for further treatment-- these industries already pay those plants user fees. Where more capacity is needed, those plants are able to raise those fees to pay for that capacity.

Finally, the taxes proposed in this bill will be extremely burdensome and will damage the international competitiveness of U.S.-based manufacturing and agriculture.

With respect to these specific questions:

a) Not all pollutants listed for taxing under this bill are "measured" by industrial dischargers. Only those pollutants directly limited in a discharger's permit are actually "measured" by the discharger. If these pollutants are not now "measured" for NPDES permit compliance purposes, presumably this bill would require that they be continually monitored for these taxing purposes. This is an extraordinarily burdensome and costly requirement.

b) The basis for the different groupings of this bill is a toxicity weighting factor that assesses toxicity of the chemicals to aquatic life and human health. EPA uses these factors when evaluating technological options under the effluent guidelines program. They are derived from water quality criteria. These groupings could well change since EPA has developed these factors only for the 126 Clean Water Act priority pollutants, not the 189 TRI pollutants that are the subject of this bill. The result is that for less than one-half of these pollutants, an arbitrary toxicity weighting factor was assigned. If EPA develops factors for these chemicals, presumably these groupings could change.

c) As indicated above, CMA opposes any tax on discharges to water. Whether there should be allowance for adjustments if chemicals were found to be more or less harmful over time, or for the capability of technology to measure these chemicals more accurately, begs two important questions: Can a rational tax be devised on this basis? Is this so complex a "taxing event" that it is unworkable? In CMA's opinion, these questions about the advances in science's knowledge about chemicals in the environment and the improvements in measurement capability suggest that this approach to raising revenues for Clean Water Act projects is unworkable as well as bad policy.

5) If clean water is truly a national issue and need, why are new taxes to pay for Clean Water Act (CWA) requirements any more fair than increased federal appropriations?

New taxes to pay for CWA requirements are neither fair nor wise. American industry is already spending billions of dollars to reduce discharges of pollutants to water. Currently, industry is attributed with causing less than 10 percent of water quality impairment. Financing solutions to remaining water quality problems is a societal issue -- not an issue that industry should be asked to pay more than its fair share.

6) Is there any specific connection with the substances being taxed by H.R. 2199 and impaired water quality? How about nonresidential water use, also taxed by H.R. 2199, and impaired water quality?

CMA is not aware of any specific connection with the substances being taxed by H.R. 2199 and impaired water quality. The substances being taxed by H.R. 2199 simply represent the toxic pollutants reported under the Toxic Release Inventory (TRI) as discharged to surface waters and publicly owned treatment works in 1988 from the industries in the Standard Industrial Classification categories that are subject to the TRI requirements of EPCRA. The assumption appears to be that the total discharge amounts of these pollutants in 1988 justifies this tax. No attempt has been made to tax those toxic pollutants that are shown to have a significant impact on water quality. In addition, CMA is not aware of any connection between nonresidential water use and impaired water quality.

7) Is it possible that the taxes on discharges into water, on water use, and on pesticides, fertilizers, and animal feeds will be passed through to the ultimate consumers, the U.S. taxpayers?

It would be difficult, if not impossible, to pass on to the consumer the economic cost of any tax that is not borne by all producers and manufacturers. The taxes on water and water use would fall solely on domestic producers and would not apply to imported products. Moreover, there is no practical means under the General Agreement on Tariffs and Trade (GATT), the North American Free Trade Agreement (NAFTA), or the U.S.-Canada Free Trade Agreement, to offset and to neutralize the harmful effects of these taxes on U.S.-based production.

With respect to the proposed taxes on pesticides, fertilizers, and animal feeds, those taxes, when passed on as increased costs to the farmer, would further disadvantage American agricultural products against competing foreign products both in the United States and in world markets.

In summary, the taxes proposed in H.R. 2199 will subsidize imports, penalize exports, and add to an already large U.S.trade deficit.

8) Have any foreign nations adopted the types of taxes in H.R. 2199 to pay for water pollution control and clean up? If so, how have they fared?

We have no information at this time available on whether foreign nations impose taxes to pay for water pollution and cleanup. In general, however, most European nations have been particularly sensitive about the interaction between domestic tax proposals and their impact on international trade position. These nations recognize the need to develop "trade-neutral" taxes. Trade neutral taxes, like the invoice credit value added tax ("VAT") which is prevalent in Europe, fall primarily upon the ultimate consumer of manufactured goods and products. Thus, the VAT tax applies to imported products used or consumed in the country, but does not apply to that country's exports that are used or consumed elsewhere. In contrast, the burden of the taxes in H.R. 2199 would be borne primarily by products and goods produced in the United States.

9) Are there any legal impediments to states charging taxes for discharges into state waters to pay for water pollution control and remediation projects: Have any states done so? If so, how has the program worked? Does this remedy answer the question about unfunded federal mandates?

Many states charge fees for NPDES permits, but we are not aware of states imposing taxes on discharges.

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TESTIMONY
OF THE

AMERICAN OCEANS CAMPAIGN,

FRIENDS OF THE EARTH,
AND
U.S. PUBLIC INTEREST RESEARCH GROUP

BEFORE THE
U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON MERCHANT MARINE AND FISHERIES
SUBCOMMITTEE ON ENVIRONMENT
AND NATURAL RESOURCES
ON

POLLUTER PAYS CLEAN WATER FUNDING ACT
H.R. 2199

March 15, 1994
10:00 a.m.
1334 Longworth House Office Building

Presented by:
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Political Director and
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My name is Dawn Martin and I serve as the Political Director and the Director of the Washington, DC Office for American Oceans Campaign. American Oceans Campaign (AOC) is a national organization based in Los Angeles, California dedicated to protecting aquatic ecosystems by conserving and enhancing our nation's oceans and coastal resources. On its behalf, and that of Friends of the Earth, and U.S. PIRG, I wish to express my thanks to Chairman Studds and to the other members of the Committee for inviting us to testify on H.R. 2199, the Polluter Pays Clean Water Funding Act.

NATIONAL COASTAL CAUCUS

Earlier this year, the American Oceans Campaign convened a gathering of geographically diverse environmental organizations. Each of these regional groups is well known for their effectiveness and expertise in dealing with coastal issues in their local areas. The result of that meeting was the formation of the National Coastal Caucus. The purpose of the NCC is to build a powerful and united voice of coastal experts, committed to the enactment of strong national legislation to protect our coastal resources.

Our first united effort is focused on strengthening the Clean Water Act (CWA). The positions taken by the NCC are based on their experience in implementing and enforcing the CWA at the local level. The following issues were identified as priorities for the NCC: improving the effectiveness of the National Estuary Program, wetlands protection, point source compliance, toxic use reduction, control of polluted runoff, elimination of combined sewer overflows, and funding for sewage treatment plants. The NCC realizes the economic implications of trying to solve all of these pollution problems at once. As a result, we have been committed to searching for creative and alternative funding sources to augment and substantially increase overall funding levels for implementation of the CWA.

INTRODUCTION

Since the Federal Water Pollution Control Act (Clean Water Act) was signed into law, its provisions have been revised on numerous occasions. With each reauthorization, Congress has strengthened protections against pollution for our nation's waters. Once again Congress is faced with this daunting task, and we believe that it is essential that significantly stronger protections be implemented, as well an increased federal financial commitment to ensure that the provisions of the Act can be efficiently and effectively carried forward.

Citizens from around the country are depending upon Congress for help. They have become increasingly aware of the value of our earth and its abundant, yet limited, resources. Public opinion polls have consistently shown that by great margins United States citizens are deeply concerned about the contamination of drinking water, pollution of lakes, rivers, and beaches.

Many of these citizens are in frequent contact with our offices. They tell us how they have cleaned up their polluted beaches, of their concern about shellfish bed closures, and the inadequacy of their cities infrastructure to adequately treat their wastewater and purify their drinking water, and finally they tell us how it is becoming increasingly difficult to deal with the skyrocketing costs of their water and sewer utility rates.

Clearly the public views protection of the environment as one of the most pressing political and practical issues of our time. This heightened awareness is also true for the business sector. We see an increase in environmentally conscious companies and industries altering and upgrading their manufacturing practices to lessen the negative environmental impact of their activities. We believe that the H.R. 2199 is the logical next step in this stage of environmental enlightenment. Passage of this bill will begin to bring some equity to the pocketbooks of all U.S. citizens. It will ensure that those people and businesses that do their best to protect the environment by using natural products and recycling their wastes, are not held financially accountable for the consequences of those whose actions damage the natural resources which we all share.

The public is aware of the tight financial situation that our country is facing. Yet, they also recognize and accept the high price tags associated with increasing environmental protections and the severe environmental, social, and long-term economic costs of delaying or not legislating these protections. They believe, as do we, that it is much more costly to try to clean up our mess, than it is to prevent the damage from occurring in the first place. By a strong 95% majority, a Harris poll indicated that people opted for losing jobs, closing factories, and companies losing money in order to clean up environmental pollution which might be dangerous to human health.[1]

As a result, we give credit to Chairman Studds (D-MA) and his staff for recognizing that the current figure of approximately $2 billion a year appropriated for clean water programs is simply not adequate. We must begin to identify additional revenue sources to address the serious problems with the water infrastructure of this country. We appreciate the Committee's efforts to try to meet these needs, and we encourage you to move ahead with confidence that the public supports your efforts to provide the funding necessary to strengthen the CWA. However grim the situation may appear, we have hope that with your help the tide can be turned.

BACKGROUND - STATUS OF U.S. WATERS

Uncontrolled urban and industrial growth are responsible for much of the pollution fouling our nation's coastal waters and beaches. Industrial and municipal discharges, urban and agricultural runoff, and atmospheric deposition pose severe threats to our vital fisheries, recreational resources, and aquatic habitat.

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[1] Public Mood Has Hardened to Advocate Tougher, Stricter Laws on Air Pollution, Louis Harris, The Harris Poll (April, 1990).

The increasing loss of fish habitat, to pollution, unwise development and other human activities is the single largest long-term threat to the future viability of the marine fisheries of the United States.[2] According to EPA's most recent (1990) National Water Quality Inventory, at least a third of our rivers, half of our estuaries, and more than half of our lakes are not meeting designated uses, meaning that they are not safe for swimming, fishing and other uses.[3] The discharge of chemical pollutants and the use of fertilizer and pesticides play a significant role in affecting the quality of these waters.

Rough estimates from 1990 show that industrial facilities discharged 197 million pounds of toxic and hazardous pollutants directly into the nation's waterways.[4] Other estimates indicate that the actual amount of toxic pollutants released into the environment is closer to 400 billion pounds.[5] The absence of consistent monitoring data, particularly for toxics, renders evaluation of water quality trends difficult. And, although we have made significant gains in reducing the total amounts of pollution reaching U.S. waters, we are still a long way away from reaching the 1985 zero discharge goal.

Millions of fish die annually from pollution and lack of oxygen -- millions more are rendered inedible by dangerous toxics. Research indicates that even extremely low, sublethal levels of toxic pollutants can be shown to cause a wide range of health effects to fish and wildlife. Yet, pollutants that are persistent and bioaccumulative continue to be released into our aquatic environments at levels that are toxic to aquatic species and to birds, mammals, and other predators that consume contaminated fish. Toxics in our estuaries threaten the biological life cycles of both marine organisms and wildlife. Coastal currents transport these pollutants along the shoreline where they accumulate in organisms and are sometimes transferred to others in the food chain.[6]

EPA has cited agriculture is the leading source of water pollution in the United States.[7] The 1990 Water Quality Inventory indicated that over 60% of impaired river miles are polluted from agricultural sources, while the next biggest source -- municipal sewage plant discharges -- contributed to only 16% of impaired river miles.[8] Specifically, crop production is responsible for much of the water quality degradation.

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[2] Stemming the Tide: Conservation of Coastal Fish Habitat in the United States, summary of a National Symposium on Coastal Fish Habitat Conservation, Baltimore Maryland (March 7-9, 1991), compiled by Carl Safina, PhD, Ken Hinman, Project Director, (hereafter Stemming the Tide) at 5.

[3] EPA, National Water Quality Inventory: 1990, (1992).

[4] EPA, 1990 Toxics Release Inventory, 58.

[5] OTA, U.S. Congress, statement before the Subcommittee on Superfund, Ocean and Water Protection, Committee on Environment and Public Works, U.S. Senate (May 10, 1989).

[6] Wastes in Marine Environments, U.S. Congress, Office of Technology Assessment (April 1987) (hereafter OTA Report) at 86.

[7] EPA, Managing Nonpoint Source Pollution: Final Report to Congress on Section 319 of the Clean Water Act (1989), EPA-506/9-90 (1992), 17.

Pesticide use pollutes both surface water and groundwater, and is linked to significant fish kills. Approximately 600 active ingredients are marketed in 45 to 50,000 formulations and about 430 million pounds of pesticides were applied agriculturally in 1987, with a market value of $4 billion.[9] According to EPA's Water Quality Inventory, such pesticides impaired 11.2 percent of all assessed river miles and 14.5% of Great Lake shore miles. Recent studies indicate that pesticides and herbicides have also been shown to affect our drinking water. One such study found that more than half of the midwestern water sites examined exceeded the atrazine drinking water standard, and one-third exceeded the alachlor drinking water standard.[10] This is of particular concern for all communities that rely upon these waters for drinking water, and especially for those small rural towns that do not use advanced drinking water treatment such as carbon filtration.

Fertilizer distribution, as part of the agricultural processes, is also a significant contributor to water pollution, while runoff sources threaten public drinking water supplies. Phosphorus in high levels is acutely toxic to fish, and in lower levels, it over-enriches water bodies, causing them to fill up with algae. Nitrogen is both a human health and livestock health concern, and also contributes to eutrophication. Nitrates in groundwater exceed current health standards in virtually all states and occur in 5 to 20 percent of sampled wells in the western Corn Belt and Mid-Atlantic states, largely due to fertilizer applications on farms.[11]

COSTS RESULTING FROM THE LACK OF CLEAN WATER

Recreational anglers in the United States spent about $25.3 billion in pursuit of their sport in 1991. According to the National Marine Fisheries Service, the annual economic value of fish dependent upon estuarine habitats is about $14 billion. Therefore, it is clear that the ripple effect of fishing on the nations economy is especially significant.

Recreational landings are estimated to account for 30% of the total domestic harvest of edible fish. Pollution and fish advisories significantly impact these expenditures, and in turn, result in serious losses to our economy. The negative public perception means that the number of tourist and convention visitors to coastal cities is greatly reduced, resulting in the potential additional losses of billions of dollars to local businesses, restaurants and recreational companies.

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[8] Id, at 9.

[9] Anthony S. Pait et al., eds., Agricultural Pesticides in Coastal Areas: A National Summary, review copy (NOAA, 1992), 4.

[10] Thurman et al., "Herbicides in Surface Waters of the Midwestern United States: The Effect of Spring Flush," Environmental Science and Technology 25 (1991), 1794-96.

[11] Water Quality 2000, Phase II: Problem Identification, Workgroup Reports (Sept. 1990), 2.

One-third of the nation's remaining productive shellfish waters are closed on any given day because of pollution. In the Gulf of Mexico, 74% of shellfish waters are restricted due to water quality degradation from inadequate septic systems, sewage discharges and polluted runoff.[12] Reports of contaminated seafood from polluted coastal waters and beaches raise additional environmental and basic health and safety concerns.

The National Academy of Sciences, Food and Nutrition Board of the National Institute of Medicine recently released a report entitled Seafood Safety.[13] The Report concluded that chronic illness resulting from seafood consumption is associated primarily with environmental contamination. It stated that many of the proposed remedies rely too heavily on inspection of seafood during processing (which is unlikely to detect most kinds of contamination) rather than on monitoring the waters where seafood is caught and testing for contaminants at the time of the harvest.[14] Without incentives for pollution prevention these kinds of effects on our food supply and human health will continue, transferring additional costs and burdens to other aspects of our economy.

ECONOMIC NEEDS

The question we face today, is how do we allocate dwindling financial resources to address these problems? It is often difficult to appreciate the urgency of addressing environmental problems because they are not always visible to the human eye. The problems we are hear to talk about today, generally, lay beneath the surface of our waters. Although we can't always see it, we know we are losing our once abundant fisheries and habitat, and we slowly poisoning our wildlife and ourselves. These problems are severe and the costs of addressing them will continue to escalate if we choose to turn our backs on them.

Postponing the inevitable is not practical or possible from an environmental or economic perspective. We must find new ways to augment funding of government programs in an era of fiscal and budgetary constraints. Traditional revenue sources, especially from the Federal Government, are increasingly scarce for all essential programs, not just for those aimed at environmental protection, but also for important social service, and education programs. In addition, pressures for Federal deficit reduction continue to mount, while States and local governments are experiencing similar shortfalls. State environmental agencies claim that they do not have the resources necessary to carry out their responsibilities of permitting, enforcing, monitoring, and planning necessary for the day-to-day implementation of the Nation's clean water programs.

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[12] Stemming the Tide at 17.

[13] Seafood Safety, Farid E. Ahmed Ed., Committee on Evaluation of the Safety of Fishery Products, Food and Nutrition Board, National Institute of Medicine (National Academy Press 1991) (hereafter Seafood Safety).

[14] Seafood Safety at 1-2.

But these costs cannot be expected to go away, and unfortunately they are going to grow. Over the last 20 years, Federal, State and local governments have contributed nearly $75 billion towards sewage treatment construction projects. Over the next 20 years, EPA estimates at least $155 billion in clean water compliance costs. These numbers do not even include the cost of more than half of the projects needed to control combined sewer overflows; the cost of implementing the National Estuary Program's comprehensive conservation and management plans or the polluted runoff control programs; and the maintenance of pollution control facilities.

As a result of the pending reauthorization of the CWA, a consensus has emerged that we should be providing a minimum of at least $5 billion per year to the State Revolving Loan Fund (SRF) program to begin to meet the Nation's waste water treatment and conveyance construction needs. This level has been supported by members of the environmental community, the National Governors Association, municipalities, and a great many Members of Congress. The $5 billion figure has also been incorporated into another piece of clean water legislation that we strongly support, H.R. 1720, The DeLauro-Lowey Water Pollution Control and Estuary Restoration Act. However, the reality is that we are currently unable to provide even half of this level of funding as the 1994 budget for the SRF demonstrates. Therefore, we commend Representative Studds for taking a step towards resolving this dilemma by providing a means to achieve an additional $4 billion over current funding levels. If the grossly inadequate current financing system is not quickly addressed, the nation's appreciation of clean water will be a thing of the past.

ALTERNATIVE SOURCES OF CLEAN WATER FUNDING

The environmental community strongly believes that the States alone cannot and should not be responsible for meeting the water program funding needs in their areas, and that the Federal Government has a continuing responsibility to assist them meet these needs. However, we believe that the Federal government also has the responsibility to look to additional sources of funds and should consider equitable ways to tie the financial responsibility to the commodities whose actions affect the quality of the water we are seeking to keep clean.

We believe that it is logical and justice dictates that those causing the problems that the CWA is intended to address should be assessed a fee. Such a fee would require pollutant sources to internalize pollution control costs that otherwise are imposed on society as a whole. The hope is that while some may prefer to pay the governmental imposed fee and continue to pollute, others may find it cheaper to modify their activities in ways that eliminate or reduce pollution at the source, thus avoiding or minimizing the external costs associated with discharging the wastes they generate.

Such a system has been in place in Germany since 1976 when they enacted an effluent charge law for controlling water pollution. The law requires that industrial sources, cities, and others pay for the cost of pollution control when they discharge wastes into public waters. According to an analysis of the German system published by EPA, "Although the actual charge is lower than abatement costs in many instances, it has proven to be high enough to provide an incentive to reduce substantially waste discharges into public waters. As a consequence, compliance as well as water quality has improved and the costs enforcement have decreased."[15]

Many of the organizations in the environmental community support the "polluter pays" concept as significant component of our efforts to achieve pollution prevention. Traditionally, however, these programs have been viewed with extreme caution so as to ensure that we do not begin to develop a system wherein our natural resources are sold off to the highest bidder. It is essential that such fees not be viewed as providing the "right to pollute" public waters for those who could afford to pay the price.

Protection of our nation's waters cannot be bought and sold. Rather, such fees should be tied to permitting costs and expenses associated with cleaning up and protecting these waterbodies from further degradation. In addition, they must be severe enough to serve as an economic incentive to reduce pollution. One way in which to ensure that this is the case, is to mandate that the fees be regularly increased on an escalating scale. Other safety nets must also be asserted. Clearly, full compliance with effluent guidelines and water quality standards must be met to ensure that ecosystem and human health standards are maintained and not sacrificed or traded for the imposition of a fee. The environmental communities support for such a concept is derived from the hope that such a disincentive to polluting will help drive our efforts to reach the 1985 goal of zero discharge.

OVERVIEW OF H.R. 2199

The Studds proposal is a vital addition to the current discussions surrounding the reauthorization of the CWA. It would amend the CWA by creating a new tax-based mechanism to increase the level of funding available for water quality improvement projects to meet clean water mandates, and would also expand the scope of water quality projects eligible for CWA funding. It is significant that the "polluter pays" taxing mechanism would supplement but not replace the existing state revolving loan fund monies authorized in the CWA. Such a mechanism would, in the long term, provide an ongoing source of clean water funding and would likely provide states with greater flexibility to establish funding priorities and to expand project eligibilities.

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[15] Brown, Gardner M. "The Effluent Charge System in the Federal Republic of Germany." Office of Policy Analysis, .S. Environmental Protection Agency. Washington, DC. July 1985. p.1.

The benefits of a "polluter pays" mechanism include: 1) creating a direct link between the discharge of pollutants and the implementation of activities to reduce the harmful impacts of such discharges; 2) creating a disincentive to use or increase the use of materials that threaten and contribute to the degradation of water quality; and 3) creating a long-term funding source that would be used to support a wide variety of water quality improvement activities.

While supporting the concept contained in this legislation, the environmental community has several concerns that should be explored with the Committee before the bill is marked up or integrated into the CWA. Some of the revisions include: greater specificity regarding eligible funding activities and the possibility of expanding eligibilities to address drinking water concerns; higher tax rates for certain pollutant uses; an equitable funding allotment formula; additional incentives to reduce the use and discharge of harmful pollutants; and assurance that the tax on toxic discharges does not promote the shifting of toxic releases to other environmental media, ie., air, waste, etc.

INCREASED FUNDING LEVELS

H.R. 2199 is projected to generate $6 billion annually for water quality improvement projects. These funds would be comprised of existing SRF and a newly created Clean Water Trust Fund. The SRFs, seeded with federal capitalization grants authorized by the CWA of 1987, currently serve as the primary funding source for clean water projects. The bill authorizes an appropriation of $2 billion annually for SRFs. There is strong support for continued, ongoing Federal capitalization of the SRFs. The most recent funding level of approximately $2 billion is viewed as being insufficient f or nationwide water pollution control project funding. Therefore, we would suggest that the bill indicate that "a minimum" of $2 billion be authorized in order to indicate that there is support for continued, increased SRF funding from the Federal government.

TAX REVENUES

The Clean Water Trust Fund would consist of tax revenue transfers to increase the total level of funding available for water pollution control project activities. The bill authorizes taxes on industrial discharges of chemical pollutants into water or publicly owned treatment works; taxes on the manufacture, production and sale of pesticides, fertilizers, and animal feed; and taxes on nonresidential water use. These pollutant taxes are estimated to generate $4 billion annually to be used for a wide range of water quality improvement and protection activities.

In order to achieve our goal of pollution prevention it is essential that the list of pollutants subject to the tax is comprehensive and updated on a regular basis. The structure of the pollutant grouping and tax rate schedule should also be regularly reviewed to ensure that the greatest disincentives are targeted toward the most harmful substances.

In regard the imposition of taxes on the discharge of chemical pollution, we believe that it should be expanded to create a disincentive for the use of harmful substances, not strictly the discharge of these substances. As mentioned above, we would like to discuss the ways in which the shifting of toxic releases to other environmental media because of the tax could be prohibited.

The water consumption tax would provide a great incentive for water conservation, a severely dwindling resource. The exemption in this category for farms, appears to provide a wholesale exemption of all farms and therefore, would exempt large water consumers such as major corporate farms. We would propose that such an exemption be limited to the small family farms. Finally, the water use tax is based on sales of water, and should likely include unregulated sales such as withdrawals of water for commercial/industrial uses.

Additionally, taxes imposed on fractional use of substances should reflect the desire to create a disincentive for discharging the most highly toxic substances. In the case of a discharge of a fraction of a pound, ton, or gallon, language regarding the tax rate should clearly state that the same amount of such tax imposed on a pound, ton, or gallon of a particular substance be imposed on a fraction of that substance. Along this same line, a review of the inflation adjustment factor is necessary to determine if this is a sufficient increase or escalation of fees to achieve our desired effect of pollution prevention.

EXPANSION OF ELIGIBILITIES

While the bill provides for the creation of a new formula to determine allotment of funds, it does not specifically direct EPA to include all water quality improvement-related needs associated with the CWA and those activities and projects made eligible for funding in the biennial needs survey. The bill should authorize EPA to expand the scope to the national needs survey to reflect newly eligible funding activities, and should include a mechanism to regularly update the scope of needs survey data as additional activities become eligible for funding authorized by the bill.

In addition to water pollution control facility projects that have historically been eligible for clean water funding, the bill expands the types and range of projects eligible for funding through a state SRF. However, some of the newly authorized eligible activities including water conservation, watershed management, and wetlands restoration are not clearly defined in the bill. Eligibilities are also expanded for other projects necessary to meet CWA requirements, including nonpoint source control and estuary protection programs, stormwater and combined sewer controls. We strongly encourage that proposals to strengthen the provisions of these current programs be considered prior to the expansion of eligibilities. In addition, greater specificity or a more clear definition of activities is needed to assure that funding is used to promote sound water quality protection and planning activities.

EQUIVALENCY REQUIREMENTS

Originally these requirements were carried over from the Construction Grants program by Congress to ensure that taxpayer dollars were not wasted and that needed facilities were well designed. However, EPA has reported that some states have claimed that these requirements add to the cost and time of completion of needed projects. In addition, the states have claimed that these requirements make it more difficult for small communities to avail themselves of the SRF program.

While we note that the legislation maintains some of the these requirements, including those relating to the National Environmental Policy Act and the need to explore innovative and alternative treatment technologies, we would like to work with the Committee to explore ways of addressing these problems without undermining the original intent of the provisions. We are sympathetic to the need to reduce administrative burdens and needless complexity. However, the need to protect the integrity of the program and the taxpayers' investment must be maintained.

Some of the newly eligible activities might also be incorporated as required components of all SRF-funded projects in lieu of or in addition to making these activities eligible for funding. For example, water conservation and reuse programs should be included among the bills "equivalency" requirements. While some of the requirements that should be retained include analyses of infiltration/inflow and of alternative technologies.

PROJECT AFFORDABILITY

The bill authorizes a number of measures to increase project affordability for small and hardship communities, as defined in the bill. Increased affordability measures are: 1) new funding eligibilities; 2) ability to use a share of funds as grants; and 3) reduced administrative costs achieved by eliminating some equivalency requirements.

It is generally agreed that changes in funding terms and eligible activities are needed to make project financing more affordable for lower income residents and hardship communities. However, definitions of hardship and small should be revised to better target funds to truly needy areas and residents, and to ensure that measures taken to increase affordability do not erode the long-term lending power of the SRFs.

The bill should require a means test for small communities and hardship communities. Such a requirement could be targeted toward the relationship of the average household income to the poverty level, in addition to the reference currently in the bill which links the requirement to the cost of water and sewer bills as compared to the median family income.

Other affordability measures include:

1. a requirement to set aside 1/5 of state administrative funds to be used for technical assistance on technologies and financing mechanisms. While technical assistance and outreach are necessary to help expedite project development and implementation, assistance should be limited to hardship communities to assure that communities with greater resources and access to expertise are not receiving no-cost assistance.

2. extending loan terms from 20 years to the "expected life" of the facility. The bill should specify a maximum loan term, of no more than 40 years. The useful life of the facility or design life, both terms used by consulting engineers would be a more practical means of stating how the loan term should be determined.

3. a requirement that states establish low income water and sewer assurance programs so that low income residents may be assured that they will continue to receive water and sewer service at "affordable" rates, as defined by the Act.

GRANTS

The bill limits the amount of funds that may used as grants to the greater of 25 percent of a state's annual SRF capitalization grant or 100 percent of any increase in annual capitalization funds above the amount received in fiscal 1992. There are a number of concerns regarding the grant authorization section.

Although the total share of funds to be used as grants is not clear, our calculations indicate that the legislation would allow approximately $2 billion to be utilized for grants. This amount seems high, even in recognition that some special hardships cases do exist, especially in small communities. But to ensure that the money is being used to assist in these situations, a means tests and cost-share requirement (when possible) should be imposed on grant recipients. Funding terms could also be established based on income ranges and relative user charges, such that poverty level families pay a smaller share of total income for charges, while higher income families pay a larger share of their incomes. In addition, language should be added to encourage small communities to evaluate the opportunities to be included in regional projects as a means of spreading project costs and increasing affordability.

We are concerned that the high level of grants authorized by the bill has the possibility of eroding the long-term viability of the fund. It might be more prudent to authorize states to offer negative interest rate loans or principal subsidies as in the DeLauro-Lowey bill, H.R. 1720. States could also be granted flexibility to establish a lower minimum requirement of funding (which would include grants) to be provided based on an evaluation of community ability-to-pay, and to address "soft" costs such as planning, management and program development.

Although the streamlined equivalency requirements is intended to reduce the administrative costs for the municipalities, the grants programs as laid out in the bill may end requiring more administrative costs on the part of the states and the EPA.

INDUSTRY-SPECIFIC IMPACTS

According to the Congressional Research Service, it appears unlikely that the industrial wastewater discharge fee described here would have a significant impact on the majority of affected industries. The major exception is the chemicals and allied products industries, which accounted for 68.5 percent of TRI discharges in 1988.

In terms of corporate profitability, the estimated fees would generally have a small impact: 1.97 percent of the food products industry's corporate profitability and 3.5 percent of the metals industries' profitability in 1990. To the extent that imposition of fees resulted in changed behavior (substitution of less toxic chemical inputs or processes involving reduced wastewater discharges), the actual and relative burdens of the fees/charges would be reduced.

Similarly, the tax on fertilizers, pesticides and animal feeds would impose a direct cost on food producers. While the fee on water use would most directly affect the electric utilities for water use at nuclear and fossil fuel-fired power plants.

But it is important to remember that the costs are with us and cannot be ignored. The ultimate question remains. Who "should" and who is best suited to bear those costs? The industries affected by this tax that contribute significantly to the problem of water pollution -- or -- the taxpayers. We believe Representative Studds has taken the first step in an inevitable evolution and we support his efforts. Congress must take responsible steps to protect the nation's citizens and natural resources -- and polluters must be encouraged to change their behaviors.

CONCLUSION

This concludes our testimony. Thank you, once again, for inviting me to present our views on the Polluter Pays Clean Water Funding Act. We appreciate the Committee's attention to the funding crisis resulting from the need to address the water pollution problems of this nation. We look forward to working with you to assure that the CWA is strengthened during the reauthorization process.

Statement of
Clinton B. Reeder, PhD
Representing
The National Association of Wheat Growers
Before the Environment and Natural Resources Subcommittee,
Committee on Merchant Marine and Fisheries,
U.S. House of Representatives
Concerning H.R. 2199
March 15, 1994

Mr. Chairman and Members of the Subcommittee:

I appreciate this opportunity to appear before you today to comment on H.R. 2199, the proposed "Polluter Pays" amendment to the Federal Water Pollution Control Act.

My name is Clinton Reeder. I own and actively manage a wheat farm near Pendleton, Oregon. I am testifying today on behalf of the National Association of Wheat Growers.

I am actively involved in water quality issues in Oregon, including legislative debate and rulemaking. In 1990, I chaired a state level technical committee which worked for a year to establish procedures for setting groundwater quality standards in Oregon. More recently, I served on a state committee to establish administrative rules to implement new legislation that will require water quality management plans on all agricultural land in impaired watersheds.

I am also a trained economist. During the past year, I have been engaged in an in-depth economic analysis of public policy impacts on wheat farms. I recently reviewed and then became involved in an especially important international sustainability research project sponsored by USDA-ARS, the Rockefeller Foundation, and others. I think this project has very major significance for H.R. 2199 and other agricultural legislation in the next few years (see following Section X, "Biological and Economic Sustainability of Agriculture Worsened By H.R. 2199" and Section XI, "Solving Biological Sustainability Issues Will Not Assure A Sustainable Food Production System").

My comments today will address the assumptions embodied in H.R. 2199 and its likely impact upon wheat farms.

Primary Conclusion

H.R. 2199 Is A Major Billion Dollar Tax On Agriculture, -- Not A Justifiable Environmental Protection Measure

The legislation would tax all pesticides and nutrients used in agriculture, whether or not they have been improperly used or specifically associated with impaired water quality. These materials, which are essential components of agricultural production, are not pollutants if used within appropriate farm management systems. The proposed tax is not a tax on pollutants - it is a $1 billion tax on agriculture.

A more appropriate approach for the Congress to take to minimize pollution related to agricultural use of pesticides and fertilizers would be to support programs which demonstrate and encourage adoption of best management practices on the part of users. The record is clear that where effective technical assistance programs have been offered, farmer response is positive and effective results are accomplished.

There are many nonpoint source programs now in progress where farmer participation rates have exceeded 75 percent, such as USDA's Water Quality Initiative and the USDA/EPA Rural Clean Water Program, as well as state Section 319 programs.

Current farm law also requires that conservation plans be fully implemented on highly erodible croplands by the end of this year. Residue management and other conservation practices required by law will significantly reduce runoff on these lands.

However, states need further assistance in improving their nonpoint source management programs to include more technical assistance and education for landowners in troubled watersheds. We hope the Congress will provide more funding for Section 319 programs when the Clean Water Act is re-authorized and encourage better watershed planning in states. Involvement of landowners within the watershed in solving water quality problems by implementing appropriate, site specific management practices is essential.

Other Conclusions

1. Faulty Assumption

H.R. 2199 assumes that over-use of pesticides and fertilizers on cropland is a primary contributor to water quality impairment, and that reduced use through taxation will reduce water quality impairment. In fact, "optimum use" of inputs through implementation of best management practices is a much superior concept, which protects the productivity of this nation's agricultural industry as well as encourages protection of water quality. Optimum use may not reduce use, but would instead increase efficient use of inputs.

2. Tax Won't Help Reduce Use

A recent analysis of optimum application rates for nitrogen fertilizers on wheat in Oregon, with different prices of fertilizer per pound of nutrient, at different market prices for wheat reached the following basic conclusions: (1) neither the price of wheat nor the price of fertilizer change the optimum application rate by very much; (2) the optimum application rate changes very little even if the price of fertilizer and the market price of wheat vary inversely; and (3) by far the most significant factor influencing optimum fertilizer application rates is soil moisture.

3. There Are Few, If Any Feasible Alternatives

Farmers constantly search for productive, feasible alternatives to the nutrients and pesticides they use. The Feb/Mar 1994 issue of Mother Earth News lists several typical pesticide alternatives, including household detergents mixed with vegetable oils (apply every ten days, but be careful, it burns plants). Other options listed include liquid detergent mixed with alcohol (spray both top and bottom of leaves, every seven days), crushed tomato leaves (keep refrigerated), tobacco water (which will kill humans), plus hot Tabasco sauce, and Louisiana hot sauce (protect eyes, do not breath fumes, keep out of eyes, do not spray on windy days, etc).

These materials may be "natural" or "organic", but they are still "chemicals", some of which have the capacity to kill or otherwise cause lasting injury to humans, as well as damage to crops. (We forget sometimes that "organic" and "natural" chemicals have been the chosen means of eliminating Kings and Queens for centuries).

These alternatives are only feasible in relatively small garden plots where labor, materials and other application costs are ignored, and where potential damage to the plants is not a matter of risking bankruptcy for the family business.

4. Vulnerable Areas

Water quality problems are concentrated in particularly vulnerable areas, not generally distributed over all farm land, meaning that a tax which penalizes all use of these materials is not appropriate.

5. Public Interest Not Served By Tax

Fertilizers and pesticides serve the public interest to a much greater extent than they risk the public interest, by assuring an adequate and stable quantity of quality foods and fibers at a reasonable cost to the public.

6. Tax Only Adds To Cost Of Production

Continued public policy which adds to costs of production without offsetting benefits to growers will assure significant decline of the agricultural industry over the coming decade.

7. Tax Conflicts With Federal and State Conservation Compliance Mandates

H.R. 2199 conflicts directly with federal and state conservation compliance measures, penalizing use of materials necessary to meet conservation compliance mandates. The year-end deadline for conservation compliance plan implementation under federal farm law will bring this conflict into major focus.

8. Tax Reduces Capacity To Finance Water Quality Practices

H.R. 2199 will siphon significant equity out of agriculture needed by the industry to finance implementation of water quality protection practices, reducing rather than encouraging greater gains in water quality enhancement.

9. Agriculture Cannot Afford The Tax

Agriculture increasingly cannot afford to pay the cost of new taxes and fees, especially those of the magnitude proposed in H.R. 2199.

10. Cost Reducing Technology Lagging

Cost reducing technological advances in agriculture are not keeping pace with the increased cost of production, meaning that real costs of production continue to increase, reducing the longer term viability of the industry.

11. Sustainability Not Assured By Biological Factors

100 percent success in accomplishing the environmental agenda will not assure sustainability of the agricultural industry, because although biological concerns are a critical concern to agriculture, they are only one among several concerns in the overall economic sustainability of the industry.

12. Tax Worsens Sustainability Dilemma For Agriculture

Sustainability of the agricultural industry rests upon a foundation of both biological and various public policy factors. Evidence suggests we are increasingly able to deal effectively with the biological issues, but are failing to appropriately address the economic issues, especially in recent years as we repeatedly add additional regulatory costs, taxes and fees which do little, if anything, to enhance the short term cash flow position of farm businesses, thus placing the industry at increased risk of instability and noncompetitiveness.

13. Need Expanded Positive Programs For Greatest Water quality Gains

To achieve the greatest gains in water quality in rural areas, agriculture needs greater technical assistance, such as the following:

a. increased research concerning hydrology and water quality,

b. a wider array of practical on site management practices to protect water quality,

c. more cost sharing programs to compensate for the costs associated with implementing new practices,

d. increased opportunity to be involved in the design of site specific practices, and

e. improved and expanded education-information programs to increase awareness and improve access to technical assistance.

Thank you very much, Mr. Chairman. I will be pleased to respond to questions at the appropriate time.

A Statement Of Supporting Information
Is Attached
To Supplement This Summary Statement

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SUPPORTING INFORMATION[1]

I. Legislation Based On Faulty Assumption

This legislation identifies agriculture as a water polluter of major proportions, which should pay a heavy toll for the assumed pollution it causes. I take issue with this proposition.

This legislation appears to be founded on the faulty assumption that all pesticides and plant nutrients are over-used in agriculture and are detrimental to water quality. In fact, they are generally used carefully and diligently, according to labels and/or recommendations approved by federal and state agencies following extensive research and testing.

Crop farming is generally a low margin, high risk business. Farmers who stay in business for any period of time must be very astute managers. An astute manager would not invest any more money in production inputs such as fertilizers and pesticides than necessary to raise and protect a healthy crop. Farmers search out the optimum application rate, considering growing conditions, the nature of the threat to the crop, the funds available to invest in fertilizers and pesticides, the likely return from investing in the materials and then use no more fertilizer and pesticides than necessary.

The risk of damage to the crop is usually too great for a farmer to risk excessive applications of fertilizer and pesticides. In addition, excess application of these materials to a crop would use up business capital which would most surely generate greater profits elsewhere in the business once optimum rates are applied.

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[1] Provided By Clinton B. Reeder, PhD, Representing The National Association of Wheat Growers, Before the Environment and Natural Resources Subcommittee, Committee on Merchant Marine and Fisheries, U.S. House of Representatives, Concerning H.R. 2199, March 15, 1994

II. "Sin Tax" Concept Not Appropriate

It is not appropriate to apply the faddish "Sin Tax" idea to producers of food and fiber in the U.S. Farmers' families, crops and livestock, and the longer term quality of their soils are directly dependent upon water quality, keeping farmers sensitive to water quality issues for generations. However, in some instances the available science has not been adequate to identify the potential threat to water quality from some practices.

Farmers continue to be sensitive to water quality. As more research becomes available concerning hydrology and the chemistry of water quality and soils in relation to farming practices; as more preferred technology becomes available, farmers are adopting new or modified practices to sustain the quantity and quality of food and fiber for consumption by the general public, both here and abroad.

III. Major Water Quality Risks are Usually In Vulnerable Areas, Not Generally Distributed

Water quality problems are clearly concentrated in areas especially vulnerable to potential contamination due to:

(1) the type of irrigation system used (primarily flood irrigation),

(2) rainfall pattern and timing (high rainfall);

(3) the soil types (primarily sandy, open soils),

(4) the level of the water table under fields (groundwater especially close to the surface),

(5) the type of crops grown (intensive crops requiring extensive

irrigation and high levels of fertilizer and pesticide application), and

(6) the timing of applications in relation to the primary periods of high rainfall or snow melt.

The more extensive the presence of any one of the above factors, and the greater the number of these factors which exist in a given location, the greater the potential risk to groundwater.

Relative to the total of all tilled acres, however, these vulnerable conditions are not generally widespread in most states. Where they do exist they can increasingly be affectively mitigated by site specific management systems engineered to reduce risks to water quality, if not actually prevent potential problems.

While the potential risk to water quality from agricultural runoff is of concern to farmers, adoption of prudent best management practices in impaired watersheds is the most effective means of reducing problems associated with runoff.

IV. H.R. 2199 Conflicts With Existing Federal Conservation Compliance Requirements Designed To Reduce Water Quality Risks

Under current farm law, a major requirement of most conservation compliance plans for farms is maintenance of considerable plant residue on the surface of the soil. This mandate is so significant that elaborate means of measuring this surface residue have been developed, and farms are field checked by government agents for compliance.

A little know factor in this country is that our farm fields are also regularly photographed from the air, including infrared satellite photos for government office review relative to various compliance concerns, crop conditions and acres planted.

In order to assure sufficient residue to meet conservation compliance requirements, fertilizer must be used to increase crop growth, which provides the increased dry material to leave on the soil after harvest of the crop. This residue is required as a means of reducing wind and water erosion, and to reduce thereby the risk of water quality problems from erosion.

Pesticides are an essential part of this production-conservation package, for without appropriate plant protection chemicals, it is much more difficult, and in most cases impossible to raise healthy plants which generate the mandated residue requirements.

These residue requirements have become so significant that failing to meet the requirement can subject a farmer to losing any and all government program benefits, including access to government financing guarantees and direct loan programs.

V. Conservation Compliance Increases Agricultural Chemical Dependence

Many severe plant diseases and harmful insects thrive on plant residue left after harvest of a crop. Thus, as farmers strive to increase the amount of plant residue on the surface of the soil to reduce erosion and enhance water quality, the dependence upon agricultural chemicals increases due to the increased disease and insect pressure.

In my own area, high residue tillage practices can easily double the chemical costs per acre to protect the crop from disease and insects, thus assuring harvest of a crop with quality acceptable to domestic as well as foreign millers and bakers--and consumers.

On my own farm this past year, in one field where we have been leaving more surface residue than in previous years, we experienced an unusually severe outbreak of a major disease which survives and multiplies on crop residue. In parts of the field where the disease affected the wheat most severely, we harvested wheat which weighed 47 pounds per bushel instead of the normal 60 to 61 pounds per bushel. It was not acceptable quality for either milling or baking, so the market price was severely discounted on this wheat; the tonnage was considerably reduced due to shriveled kernels; income from the field was therefore severely reduced.

H.R. 2199 is designed to encourage the decreased use, while conservation compliance encourages, and in fact in some cases requires increased use of the same materials. Thus, implementation of H.R. 2199 would amount to establishing directly opposing federal mandates.

If a farmer responds to conservation mandates by increased use of fertilizer and pesticides, he then would have no choice but to pay the H.R. 2199 tax on the increase in materials used.

VI. There Are Few, If Any Feasible Commercial Alternatives

Farmers constantly search for productive, feasible, alternatives to the nutrients and pesticides they currently use; alternatives which do not pose unreasonable risks to crops, to humans, to wildlife, to domestic animals and which will not be odor irritants to neighbors yet can be targeted to a particular problem in the fields; alternatives which are effective, efficient and can be purchased and applied at reasonable cost.

The Feb/Mar 1994 issue of Mother Earth News lists several typical pesticide alternatives, including the following:

1. household detergents mixed with vegetable oils (apply every ten days, but be careful, it burns plants);
2. liquid detergent mixed with alcohol (spray both top and bottom of leaves, every seven days);
3. crushed tomato leaves (keep refrigerated);
4. tobacco water (which will kill humans);
5. hot Tabasco sauce, and Louisiana hot sauce (protect eyes, do not breath fumes, keep out of eyes, do not spray on windy days, etc).
6. Garlic and onion juice (a neighboring community, close to where I farm, recently experienced lawsuits, public threats, etc. in response to a garlic processing business--the neighbors did not like the odor)
7. Retenone (toxic to fish and nesting birds); and
8. Snuff (do not use on tomatoes, peppers, eggplants and other members of the *Solanum* family, because it can spread the tobacco virus to this family of plants).

These materials may be "natural" or "organic", but they are still "chemicals", some of which have the capacity to kill or otherwise cause lasting injury to humans, as well as potentially causing severe damage to crops. (We forget sometimes that "organic" and "natural" chemicals have been the chosen means of eliminating Kings and Queens for centuries).

These alternatives are only feasible in relatively small garden plots where labor, materials and other application costs are ignored, and where damage to the plants is not a matter of bankrupting the family business.

If airplanes were hired to fly these materials every week to ten days at a cost of $4.50 to $5.50 per acre in addition to the cost of materials, the special mixing equipment and labor, the cost would be absolutely prohibitive!

Even if a farmer wanted to use these alternative materials, for most of them there are no formal label guidelines to guide precise applications. They have not been through the exhaustive formal testing required by government to determine potential hazards to plants and other life forms, and to carefully examine the long term affect of the materials and the metabolites thereof in the environment.

I occasionally attend "organic farming" conferences in search of alternatives. When I ask trade show personnel "what do you have that I can use at reasonable cost on 1,000 acres of wheat", I have always been told "nothing" -- except at the booths which are selling commercial fertilizers and pesticides.

A common assumption made by people not familiar with the nutrient and pesticide needs of commercial agriculture is that if farmers would only do so, they could use one or more "safe" alternatives. That is absolutely not true.

If H.R. 2199 taxes farmers away from a particular material, there are few if any feasible alternatives. Farmers, and the public will simply be left unreasonably exposed to the pest risks. And, in recent years, consumers have clearly demonstrated they will not tolerate the quality deterioration which normally accompanies crop pest damage.

If Congress wants farmers to use alternatives to the existing materials, significantly greater research effort will have to be devoted to developing alternative commercially feasible materials.

VII. H.R. 2199 Reduces Farm Equity Needed To Meet Environmental Mandates

Increased tax programs such as proposed in H.R. 2199 merely serve to take away from agriculture the financial resources needed to develop and adopt improved practices. Historic cost sharing programs operated through the Soil Conservation Service have for generations clearly demonstrated the advantages of a positive incentive / shared risk approach between government and agricultural producers, a program which has long encouraged investment of private equity in measures designed to enhance agricultural productivity and conserve the natural resource base of farms.

VIII. Tax On Plant Nutrients and Pesticides Will Not Normally Decrease Their Use

An assumption implied by the high tax rates proposed in H.R. 2199 is that a tax on fertilizers and pesticides will reduce the use of these products. That is not generally a correct assumption, except in those areas where it can be clearly demonstrated that excessive fertilizer is being used, or for materials on which the highest tax rates would apply. The data with which I am familiar clearly indicates excess use of fertilizers and pesticides is not the general case. In my experience, in fact, under application is far more frequently a problem for many growers, as they strive to keep their cost of production as low as possible, without unreasonably endangering the health and vigor of their crops.

Fertilizers and pesticides are two of the major expense categories for any crop farm. Reducing use of fertilizer and chemicals is a major area of annual attention by any serious farm manager. However, these materials are also two of the key essential ingredients in a profitable farm business. Without them, the typical commercial farm would be bankrupt in a very short time period.

If the typical farmer is now using approximately optimum levels of fertilizer, considering his relevant production factors, then any reduction in use will cause significant yield decline. If yields are not maintained, there is less crop volume to market. In most cases, less crop to market, means reduced net farm income.

In order to assume the tax in H.R. 2199 will lead to reduced use of fertilizer and pesticides, one would have to assume the average farmer pays little attention to the current economics of fertilizer application--and that is not the general case. Precision application is the goal pursued by any serious farm manager, considering together the relevant biological and economic concerns, plus environmental and legal concerns.

The old adage that if a little helps, a lot should help a lot more is entirely false in farming. The adage most often heard among farmers, is quite the contrary: "If a little helps, maybe a little less will do an adequate job, and also save money."

The evidence indicates clearly that farmers will reduce use of fertilizers very little if a tax is applied to them. In some states, a tax on fertilizers already exists. In fact, in Oregon, wheat growers successfully lobbied in 1989 for a fertilizer tax to be dedicated to research concerning environmental and water quality issues claimed to exist because of fertilizer use. To my knowledge, this new tax has had no affect whatsoever in reducing use of fertilizer.

Exhibit I-1 reflects optimum fertilizer use with 0 percent tax on fertilizer, with a 5 percent tax, a 10 percent tax and a 15 percent tax. Even this highest tax level does not significantly reduce the optimum fertilizer application rate.

Exhibit I-2 reflects the impact of price of the commodity upon optimum application rate for fertilizer. Except when the commodity price moves to the extreme, up or down, the price of the commodity has relatively little impact upon optimum application rate.

Exhibit I-3 reflects the optimum fertilizer application rate for lease vs owned land. If the land is leased, and the operator pays the total cost of the fertilizer, but only receives an operator's share of the crop (in this analysis, 60 percent) then there is significant economic incentive to reduce fertilizer application rates by about 10 pounds per acre.

Exhibit I-4 reflects the optimum fertilizer application rate on any given soil under higher moisture conditions, and under lower moisture conditions. Obviously, more moisture means more fertilizer can be justified. Neither moisture or fertilizer will be used efficiently by a crop unless they are available together in appropriate relative amounts.

Exhibit I-5 reflects the optimum fertilizer application rate on deep vs shallow soils. Deep soils normally carry more natural nutrients, and have a much better capacity to carry moisture, and to hold moisture through dry periods. This exhibit clearly indicates that soil conditions have a major impact upon fertilizer application rates.

In summary, these exhibits indicate the following factors have relatively little impact on reducing fertilizer use:

1. Tax on fertilizer
2. Price of the commodity

The following factors do indeed have significant impact upon fertilizer application rates:

1. Whether the land is leased or owned;
2. Availability of soil moisture; and
3. Soil depth and type.

The business of farming crops is built upon the foundation of healthy plants, adequately fertilized, with minimum competition from other plants (weeds). Fertilizers and pesticides are two essential key ingredients in this foundation. Continued judicial use should be encouraged if Congress really seeks to serve the best public interest, not imposition of a significant tax which will accomplish little more than increase food production costs.

IX. Government Statistics Indicate Agriculture Will Have Increasing Difficulty Paying The H.R. 2199 Taxes

A review of government published economic statistics for agriculture clearly reflects this worsening cost vs income dilemma for agriculture.

Exhibits III-1, III-2, III-3 reflect that commodity prices are lagging well behind the cost of most major production items for agriculture. Exhibit III-4 reflects the steadily declining parity index, the ratio of prices received to production costs, for grains and for all agricultural commodities.

X. Biological and Economic Sustainability of Agriculture Worsened By H.R. 2199

The premise that agriculture can afford this tax is wrong. Agriculture is increasingly an embattled industry, with an endangered future in the U.S. At the present time, real estate people indicate that a very major factor in farm land values today is government payments, taxes and fees on farms. In Oregon, within one year any new tax on farm production, or any other factor which serves to reduce net farm income will immediately be incorporated into the land assessment process and reduce land values -- with resulting impact upon all local institutions which rely upon property taxes, especially schools and county government. Also, any reduction in land values impacts the ability of farmers to finance farm operations.

Recent research accomplished at the Columbia Basin Agricultural Research Center (CBARC) (USDA-ARS and Oregon State University cooperating) near Pendleton, Oregon suggests rather strongly that *U.S. farm policy has, since W.W. II held U.S. farms on a relentless path involving ever increasing economic risk of an eventual collision with sustainability* (copy of study provided to committee for the record). *The major sustainability problem is* *__not__* *due to biological issues, which the research indicates we are addressing with considerable success.*

Of major importance in this study is the finding that *high input production systems are more sustainable than low input systems, meaning keeping application of fertilizer and pesticides at a reasonably optimum level is critical* to production of healthy plants, which in turn generates increased residue to meet conservation compliance requirements, and from a biological standpoint helps slow the loss of soil organic matter which is critical to biological sustainability, in part due to increased water holding capacity of soils with higher organic content.

XI. Solving Biological Sustainability Issues Will Not Assure A Sustainable Food Production System

This CBARC study reflects that the major agricultural sustainability concern is public policy which continues to contribute to increased costs of production and/or limits the level of commodity prices below that necessary to adequately provide equity to keep the farm business afloat and able to invest in technology to meet environmental and other demands.

For wheat in the Pacific Northwest, the economic sustainability index will apparently go negative soon after the year 2000, meaning we have relatively little time to appropriately address the issue if we want to avoid a potential major regional, if not a national commodity disaster for wheat production (see exhibit II-1). Close analysis may well reflect similar circumstances for other commodities.

The tax proposed in H.R. 2199 will have a major impact upon bringing closer the date of reckoning concerning the economic sustainability for agriculture as an industry, meaning that if Congress simply extends past policy beyond 1995 for agriculture, including the addition of more taxes such as proposed in H.R. 2199, they invite major economic dilemma in the rural areas, with the associated negative urban impacts.

XII. Technological Advances Not Keeping Pace

It has long been assumed technological advances in agriculture would reduce costs on a continuing basis sufficiently to offset the declining parity ratio. Such an assumption can only be made realistically if public investment in cost reducing technology is continued at a significant level, considering the rising cost of performing such research. That has not been happening, in fact quite the contrary.

In real terms, agricultural research has not been maintained at a level necessary to provide an adequate flow of new technology, meaning the parity ratio does indeed reflect a worsening financial condition for agriculture, even if newer technology and improved management practices are considered. This unrelenting decline in the relationship between income and operating expenses is not just an agricultural concern, but also has the potential of becoming a major national concern to the general public.

XIII. Reduced Pesticide Availability -- Threat to General Public

Pesticides have been lobbied into a very precarious position, sometimes with justification, but often founded more on public hysteria than fact. As a result, pesticide availability is an increasing production problem.

The following factors continue to reduce the availability of plant protection materials alternatives to growers.

1. An increasing number of pesticides have been forced off the market, for one reason or another;
2. Testing requirements are ever more stringent, increasing the cost of obtaining government clearance for new materials and renewing licenses for older materials. As a result, manufacturers are less

willing to risk investing in materials unless the potential market is sufficient for them to recover their investment.

3. Labels authorizing specified applications of various materials are more and more limited as to the crops, conditions and rates under which the material may be used.

As the number of alternative plant protection materials and application rates are reduced for use on a given crop under particular circumstances, growers become more and more dependent on a small number of alternatives, for some crops now only one or two feasible alternatives. Thus, they have fewer and fewer options to consider, and since they normally have little choice but to use the materials when their crops are threatened by disease and/or insects, they are trapped into paying any tax such as that proposed in H.R. 2199. Reducing application below label rates usually voids warranty on the products, and eliminating use of the materials is not always a viable alternative.

This reduction in available alternatives for raising healthy crops, coupled with the increased costs (including taxes such as in H.R. 2199), means the public is increasingly subject to having their range of available food and fiber alternatives reduced, and potentially even a reduction of the stability and quality of the products in the retail stores.

XIV. Fertilizers and Pesticides Serve The Public Interest

An adequate supply of quality foods is a critical concern of the average citizen, in the U.S. as well as in other parts of the world. History documents clearly that governments topple over food prices. Instability of food supply, quality and cost to consumers quickly becomes a major political issue, as can be witnessed currently in many parts of the world.

Most fertilizer and pesticide technology used today has been developed primarily since World War II. It was developed in response to a pressing international need for increased quantity of safe foods, as a primary means of re-stabilizing governments and societies around the globe.

Farmers use these materials not out of greed or disregard for public safety, but have learned to use them (1) in response not only to the normal need to maintain equity in our businesses but also (2) to respond to various public policy initiatives over the years and (3) to respond to a public demand for adequate supplies of quality foods at relatively stable prices which (4) requires a minimum expenditure by U.S. and foreign households.

It is not appropriate to develop legislation which treats agricultural chemicals and plant nutrients as if they will be forever, and on ever acre of farm land, detrimental to the best interest of the U.S. citizens. To place the H.R. 2199 Tax Burden on these materials essential to providing a stable supply of nutritious, safe foods and fibers runs contrary to the public interest.

XV. Best Management Practices Effectively Address Water Quality concerns

Technical assistance and education programs to encourage adoption of best management practices must be made to work as the primary means of addressing water quality problems in impaired watersheds. The record is clear that where effective technical assistance programs have been offered, such as those under the Rural Clean Water Program and USDA's Water Quality Initiative hydrologic unit area projects, farmer response is positive and results are proven.

The immediate objective of nonpoint source programs under the Clean Water Act should be aimed at involving the majority of landowners within impaired watersheds in cooperative problem-solving efforts on the basis of education, technical assistance and cost-sharing where necessary. Cooperative nonpoint source projects such as those mentioned above have demonstrated (1) that 75-80 percent participation levels are the rule, and achieve significant water quality improvement and attainment of project water quality goals for the watershed; and (2) that non-participants usually cooperate once new practices have been adopted by the majority and become the norm for the area. Farmer-to-farmer demonstration and peer pressure, combined with institutional technical assistance, close the performance gap.

XVI. Progress Is Being Made

While the pace of progress on water quality may not satisfy some persons, progress is certainly moving along at a brisk pace for those of us who must take the on site risks associated with financing and changing management practices. As the level of information increases and pressure from various federal and state water quality mandates intensifies, and a wider range of response alternatives are identified, farmers will be able to demonstrate increased effectiveness in dealing with water quality concerns, when and where appropriate.

XVII. Provide Positive Incentives And Demonstrate Alternatives To Achieve Greater Water Quality Improvement

If the federal government truly wants major water quality improvements, generated at a fairly significant rate year by years, then a far more beneficial approach than this tax on fertilizers and chemicals would be to provide incentive programs and additional research to help agriculture cope with the risks and costs of identifying, testing and changing to alternative production systems, and respond to the ever increasing burden of regulation associated with policing of compliance. We need programs which demonstrate in our local communities and various agronomic zones, those practices which alone or in combination serve to reasonably and feasibly enhance water quality.

While there are many programs now in progress, such as USDA's Water Quality Initiative and the USDA/EPA Rural Clean Water Program, states need further assistance in improving their nonpoint source management programs. Agriculture has a significant need at the present time for the following:

1. increased technical assistance, research, demonstration projects and education to accelerate the development and adoption of practices which increase producer awareness of hydrologic / water quality issues, and better address water quality concerns, especially in the more vulnerable geographic areas;
2. More funding for section 319 programs when the Clean Water Act is re-authorized; and
3. Significantly increased involvement of local landowners in a

watershed to identify and implement site specific practices essential to enhancing water quality.

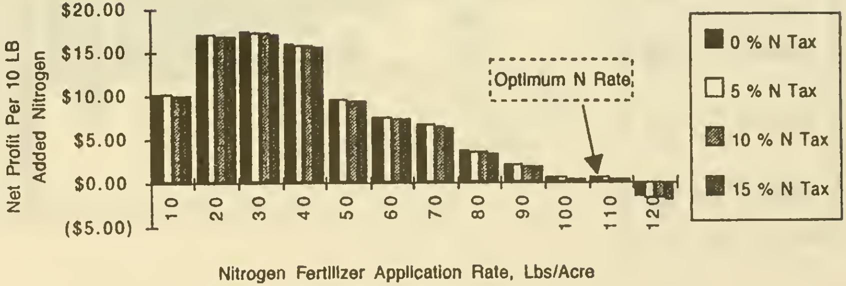
Thank You for your attention. I would be glad to respond to your questions at the appropriate time, if you have any.

Attachments

1. Appendix I. "Factors Affecting Nitrogen Fertilizer Application Rates For Non-Irrigated Farms Using A common Wheat-Summerfallow Rotation, Umatilla County, Oregon"
2. Appendix II. "Biological and Economic Sustainability Of Non-irrigated Wheat Production In The Pacific Northwest"
3. Appendix III. "Index Of Prices Received By Farmers, Index Of Prices Paid By Farmers, And Parity Index, 1977-1991"
4. Copy of "Biological And Economic Sustainability Of Wheat/Fallow Agriculture". Paul Rasmussen, Richard Smiley, and Bart Duff. Columbia Basin Agricultural Research Center, P.O. Box 370, Pendleton, Oregon

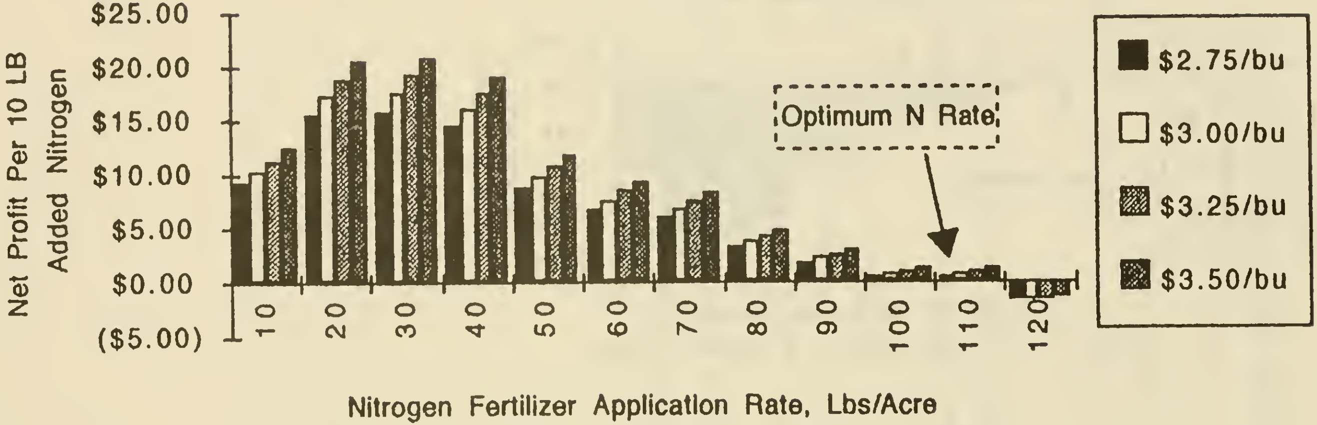
Appendix I. Factors Affecting Nitrogen Fertilizer Application Rates For Non-irrigated Farms Using A Common Wheat-Summerfallow Rotation, Umatilla County, Oregon

Exhibit I-1. Impact Of A Fertilizer Tax On The Optimum Application Rate For Nitrogen Fertilizer



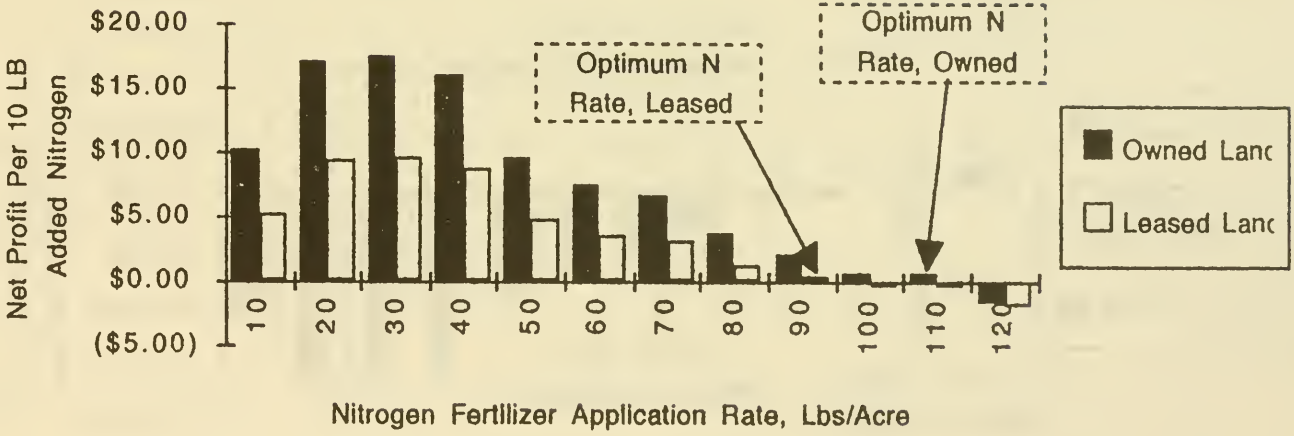
Source: Yield Data From Columbia Basin Agricultural Research Center, Pendleton, Oregon -- Economic Analysis By Clinton B. Reeder, PhD, Consulting Economist and Farmer

Exhibit I-2. Impact Of Wheat Price On The Optimum Application Rate For Nitrogen Fertilizer



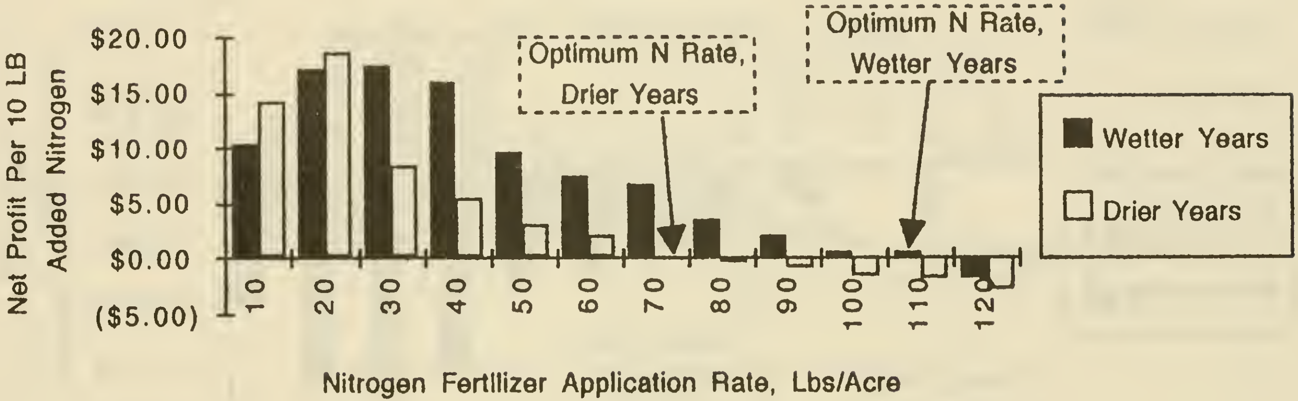
Source: Yield Data From Columbia Basin Agricultural Research Center, Pendleton, Oregon -- Economic Analysis By Clinton B. Reeder, PhD, Consulting Economist and Farmer

Exhibit I-3. Impact Of Land Ownership On The Optimum Application Rate For Nitrogen Fertilizer



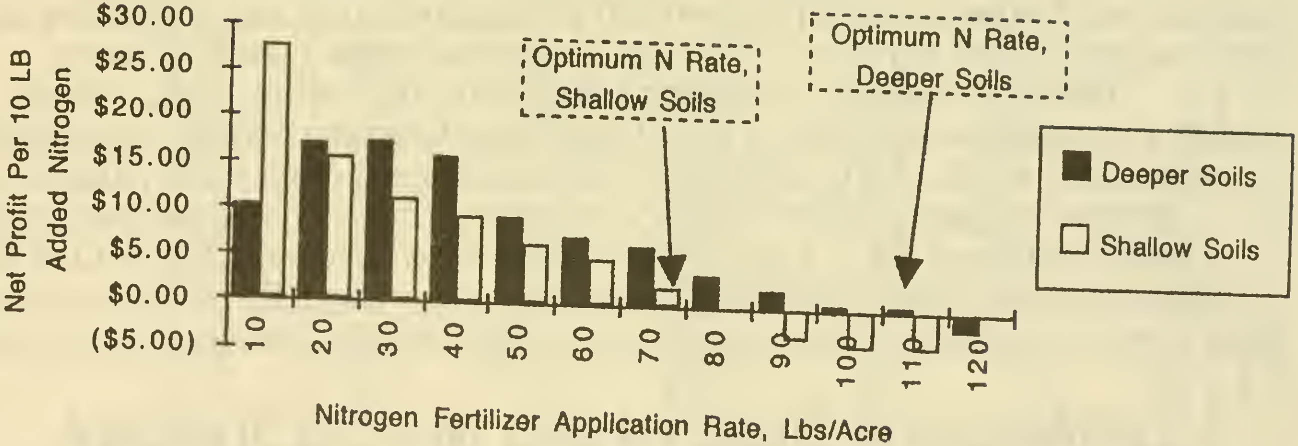
Source: Yield Data From Columbia Basin Agricultural Research Center, Pendleton, Oregon -- Economic Analysis By Clinton B. Reeder, PhD, Consulting Economist and Farmer

Exhibit I-4. Impact Of Available Moisture (Rainfall and Snowmelt) On The Optimum Application Rate For Nitrogen Fertilizer



Source: Yield Data From Columbia Basin Agricultural Research Center, Pendleton, Oregon -- Economic Analysis By Clinton B. Reeder, PhD, Consulting Economist and Farmer

Exhibit I-5. Impact Of Soil Depth On The Optimum Application Rate For Nitrogen Fertilizer



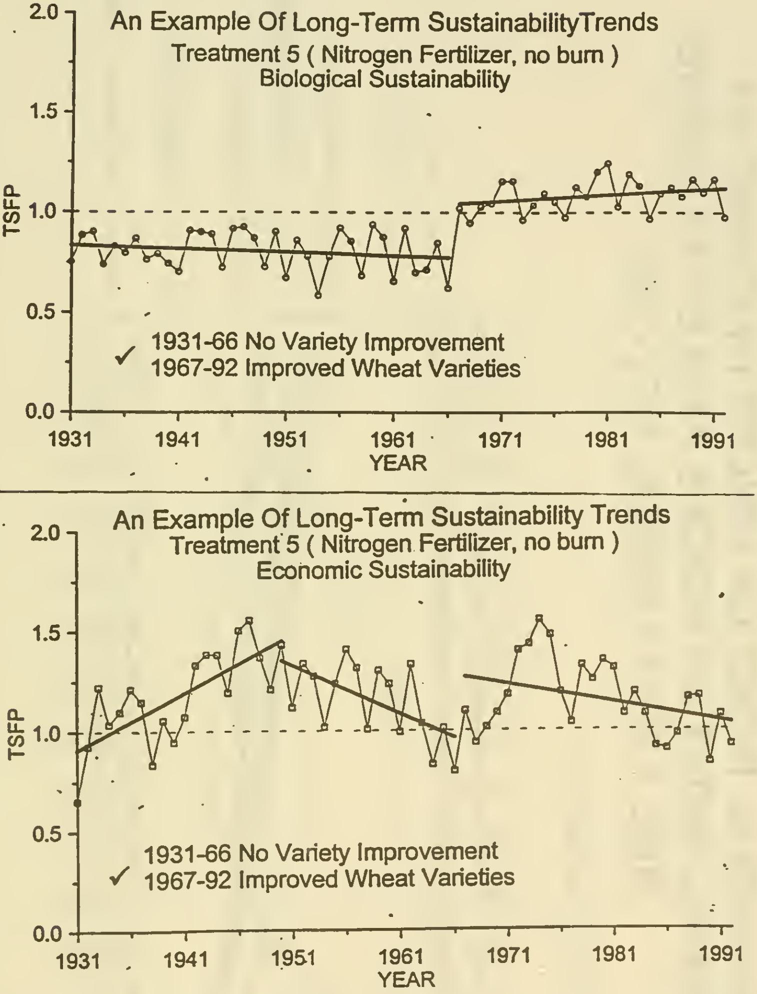
Source: Yield Data From Columbia Basin Agricultural Research Center, Pendleton, Oregon -- Economic Analysis By Clinton B. Reeder, PhD, Consulting Economist and Farmer

APPENDIX II. BIOLOGICAL AND ECONOMIC SUSTAINABILITY OF NONIRRIGATED WHEAT PRODUCTION IN THE PACIFIC NORTHWEST

Data Source: Primary research conducted by Paul Rasmussen, PhD, USDA-ARS Soil Scientist and Bart Duff, PhD, Consulting Economist, using information from long term wheat production plots dating back to 1931 at the Columbia Basin Agricultural Research Center, Pendleton, Oregon (study is part of a recent international agricultural sustainability study financed in part by the Rockefeller Foundation). Related research and public policy analysis accomplished by Clinton B. Reeder, PhD, Farmer and Consulting Economist, Pendleton, Oregon.

These long term wheat production plots are among the oldest continous use plots available in the world, providing a unique data base concerning the long term impact of various production practices and technology.

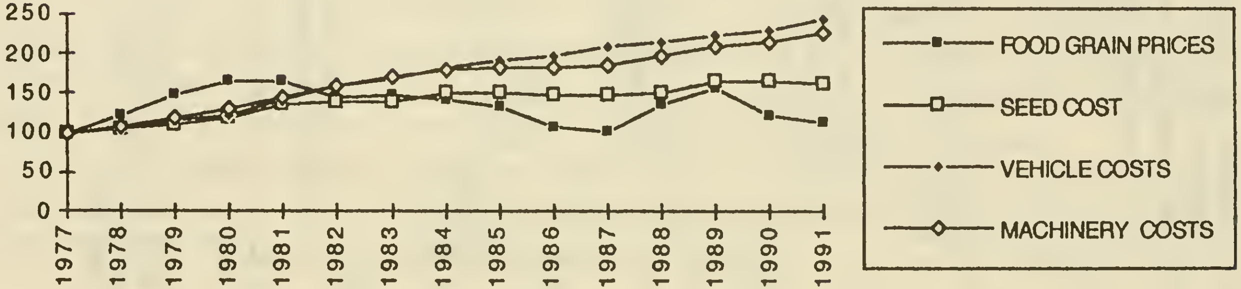
Exhibit II-1. Biological And Economic Sustainability Of Wheat/Fallow Agriculture In The Pacific Northwest



Source: "Biological And Economic Sustainability Of Wheat/Fallow Agriculture In The Pacific Northwest". Paul E. Rasmussen, USDA-ARS; Richard W. Smiley, Oregon State University; and Bart Duff, Consulting Economist. Columbia Basin Agricultural Research Center, P.O. Box 370, Pendleton, Oregon. 1993

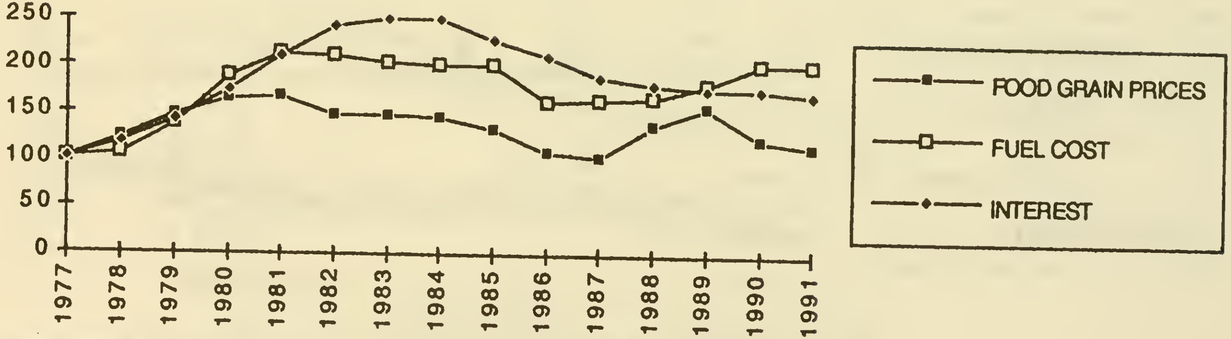
Appendix III. INDEX OF PRICES RECEIVED BY FARMERS, INDEX OF PRICES PAID BY FARMERS, AND PARITY INDEX, 1977-1991

EXHIBIT III-1. Index Of Prices Received By Farmers For Food Grains, And Index Of Prices Paid For Seed, Vehicles and Machinery, 1977-1991



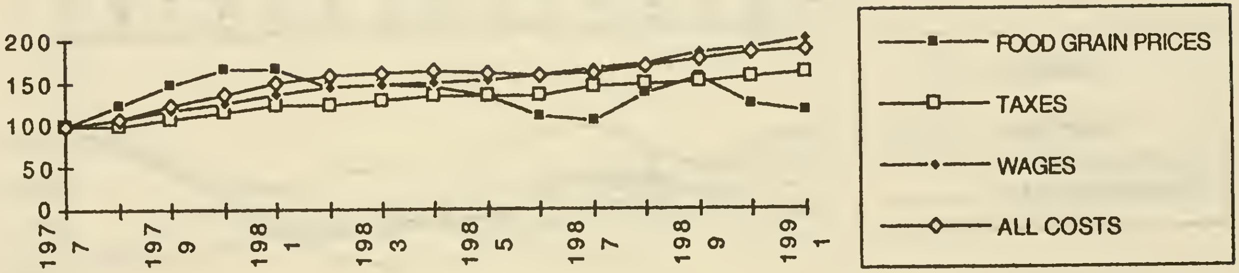
·Source: Agricultural Statistics, 1992

Exhibit III-2. Index of Prices Received By Farmers For Food grains, And Index Of Prices Paid For Fuel And Interest, 1977-1991



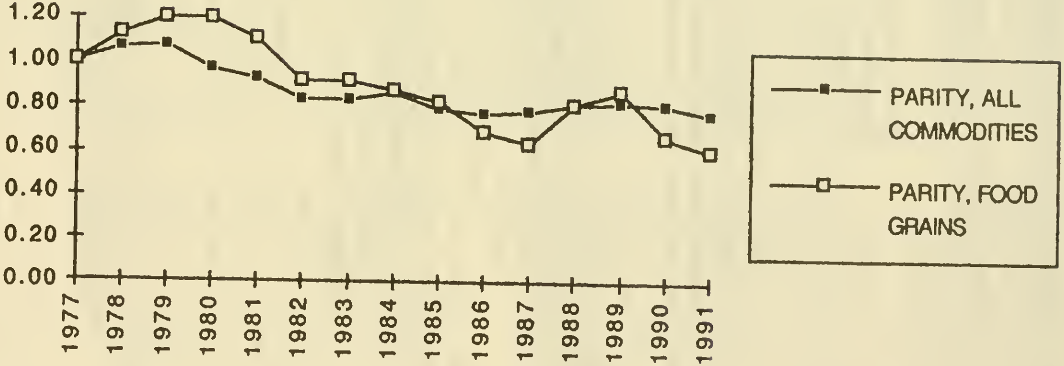
•Source: Agricultural Statistics, 1992

Exhibit III-3. Index Of Prices Received By Farmers For Food Grains, and Index Of Prices Paid for Taxes, Wages and All Production Costs, 1977-1991



•Source: Agricultural Statistics, 1992

Exhibit III-4. Parity Index For All Commodities and For Food Grains, 1977-1991



·Source: Agricultural Statistics, 1992

BIOLOGICAL AND ECONOMIC SUSTAINABILITY OF WHEAT/FALLOW AGRICULTURE

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Published in the
1993 Columbia Basin Agricultural Research Annual Report
Oregon Agricultural Experiment Station
Special Report 909, pages 13-22

BIOLOGICAL AND ECONOMIC SUSTAINABILITY OF WHEAT/FALLOW AGRICULTURE

Paul E. Rasmussen, Richard W. Smiley, and Bart Duff

There is a growing perception among the general populace that present farming practices are neither sustainable nor environmentally sound. Sustainability is generally defined as the ability of soil to maintain crop production without degradation of the soil or contamination of the environment. Present agricultural growth is attained by steadily increasing yield through greater input of non-renewable resources. Excessive soil erosion remains an ever-present threat to continued productivity. The sustainability of Pacific Northwest wheat production systems is also related to economic viability because of strong international competition for export markets, rising production costs, and ever-increasing off-farm costs for factors such as soil erosion, fertilizers, and pesticides. There is, therefore, a strong incentive to determine if present practices are not only sustainable, but also capable of enhancing wheat production in this region.

Long-term experiments provide information about the sustainability of agricultural systems that can be obtained in no other way. Oregon State University and the USDA maintain five long-term experiments at the Columbia Basin Agricultural Research Center near Pendleton. These are among the oldest replicated research experiments in the nation. We attempted to measure trends in long-term agricultural sustainability for a wheat/fallow experiment started in 1931. The wheat/fallow system is perhaps the most sensitive of all production systems because, while it reduces the risk of crop failure resulting from inadequate soil moisture, it is subject to rapid soil organic matter loss during the non-productive part of the rotation.

HISTORY OF THE RESIDUE MANAGEMENT EXPERIMENT

This study was initiated at the Research Center in 1931 to evaluate the long-term effects of fertilizer amendments and residue management on grain yield and soil quality in a wheat/fallow production system. The experiment has two identical series offset by one year so one is in crop while the other is in fallow. The soil is a Walla Walla silt loam. This trial has been conducted relatively unaltered since inception, with changes introduced only to ensure relevance with modern agriculture. Long-term supporting data from the Center's variety breeding trials are also available to evaluate yield improvements over time.

We selected four treatments in the residue management experiment to investigate sustainability (Table 1). Winter wheat stubble is left undisturbed over winter, except for the fall-burn treatment. The organic amendment (barnyard manure) is applied to the manure treatment in the spring. The entire experiment is moldboard plowed in April and smoothed with a field cultivator and harrow. The fallow is rodweeded three to four times annually. Inorganic-N fertilizer is applied to the 80-N treatment as granular material broadcast just prior to planting. Grain yield is determined by combine harvesting a portion of each plot.

Two major changes in management have occurred since 1931. The initial experiment utilized a medium-tall soft white winter wheat variety (Rex M-1) and a low

Table 1. Residue management and inorganic-N fertilizer applied to the residue management experiment between 1932 and 1992.

Treatments		Straw Management[†]		N Fertilizer	
No.	Name	1931-66	1967-92	1931-66	1967-92
				pounds/acre	
6	Fall burn	FB	FB	0	0
0	Zero-N	UB	UB	0	0
5	80-N	SD	UB	30	80
8	Manure[‡]	UB	UB	0	0

[†] FB = Fall burn, UB = Unburned, SD = Spring disked.

[‡] Manure applied at 20 tons/acre/crop (moist weight), except for 1943-1947. Average N input from manure is 100 pounds/acre.

Table 2. Average grain yield for five time periods between 1932 and 1986.

Treatment		Period				
No.	Designation	1932-41	1942-51	1952-66	1967-76	1977-86
		- - - - - Grain yield, bushels/acre/crop - - - - -				
6	Fall-burn	39.1	39.6	31.1	44.4	41.8
0	Zero-N	38.1	40.2	32.6	46.2	45.1
5	80-N	42.0	45.9	41.0	67.6	75.3
8	Manure	48.0	54.0	50.1	72.0	79.0

Table 3. Soil organic matter and nitrogen in the top foot of soil in the residue management plots on six dates.

	Year Sampled					
Treatment	1931	1941	1951	1964	1976	1986
	- - - - - - - - - - - - Organic matter, tons/acre - - - - - - - - - - - -					
Fall-burn	37.5	35.8	32.5	32.7	30.8	28.5
Zero-N	38.7	37.9	34.6	33.9	32.7	30.5
80-N	37.5	37.4	35.6	34.0	33.6	32.3
Manure	37.4	39.2	40.9	38.0	39.1	38.6
	- - - - - - - - - - - - Nitrogen, pounds/acre - - - - - - - - - - -					
Fall-burn	3310	3180	2930	2820	2700	2550
Zero-N	3420	3380	3130	3060	2940	2850
80-N	3310	3320	3210	3090	3050	2990
Manure	3330	3480	3690	3640	3730	3750

rate of N application (30 lb/acre). The experiment was revised in 1967 to change the wheat type from a medium-tall to a semi-dwarf variety, and to increase the N application rate from 30 to 80 lb/acre. Wheat cultivars since 1967 include Nugaines (1967-1973), Hyslop (1974-1978), and Stephens (1979-1992).

Soil samples to a depth of two feet were taken in 1931, 1941, 1951, 1964, 1976, and 1986. Total N and organic C (a measure of organic matter) were determined for the 0-12 and 12-24 inch increments. Since less than 1 percent of the total N was inorganic, all N in soil is essentially organic-N.

WHEAT YIELD AND SOIL CHEMICAL PROPERTIES

Wheat yield in the variety trials at the Center has risen steadily since 1932 at a linear rate of 0.77 bushels/acre/year (Figure 1). About 0.67 bushel of the increase has been due to development of improved N-efficient, disease-resistant varieties and the remainder to improved crop management. In the residue management experiment, the manure treatment has consistently produced grain yields equal to or above those in the variety trials. Grain yield for the manure treatment has risen steadily from 48 bushels/acre in the 1930's to nearly 80 in the 1980's (Table 2). The low fertility treatments (fall-burn, zero-N) originally yielded about 80 percent of the manure treatment, but this percentage has fallen progressively over time to about 50 percent%. The 80-N treatment currently yields about 95 percent of the manure treatment, but a direct comparison is not possible since manure supplies more N (99 vs 80 lb/acre) and also other elements (P, S, K, Zn, etc.). Fall burning originally tended to increase grain yield over zero-N, but the effect was short-lived. By the 1950's, yields were similar, and in recent years the fall-burn treatment has yielded less.

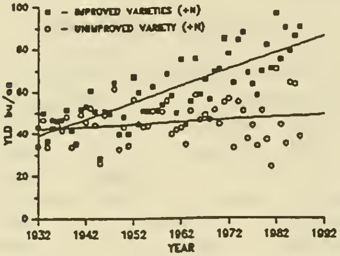

Fig 1. The effect of varietal improvement on winter wheat grain yield, 1932-1992. Pendleton Agric. Res. Ctr.

There was a substantial increase in grain yield in 1967 with the change from a medium-tall to a semi-dwarf wheat variety. Wheat yield in the zero-N treatment increased about 40 percent, even though there was little change in available N supply. This was due to both higher transport efficiency of N from vegetative to reproductive tissue and to lower protein content in the grain of semi-dwarf wheat.

With the exception of the manure treatment, soil organic matter and N declined with time for all treatments (Table 3). Organic matter in the top foot of soil averaged 37.8 tons/acre in 1931, but ranged from 28.5 to 38.6 in 1986. The manure treatment had the highest amount in 1986. The N content of the top foot of soil averaged 3,340 lbs/acre in 1931, but ranged from 2,550 to 3,750 in 1986. Again, the manure treatment had the highest amount. The organic matter decline with time was linear for each treatment, and the rate of decline related to the amount of organic residue being returned to the soil. None of the treatments presently produce enough straw residue to stop the decline in soil organic matter.

ECONOMIC ANALYSIS

We developed an index of input costs and output prices between 1931 and 1992 for each treatment based on USDA estimates of prices paid by farmers. Because the cost of experimental trials are higher than actual farm costs, we used the operational and fixed costs for a representative 2,500 acre farm in the Columbia Plateau (Table 4). Cultural operations and costs were assumed identical for each treatment. Thus, treatment costs are distinguished only by differences in the cost of fertilizer and residue inputs, the cost of yield-dependent operations such as harvesting and hauling, and external costs resulting from erosion. Individual treatment costs were multiplied by the input cost index to generate annual cost estimates for each treatment. We tested the validity of these estimates by comparing the calculated indexed costs against a limited survey of actual production costs for the years 1974-1988. Cost estimates based on the national index of prices paid by farmers closely approximated wheat/fallow production costs reported by the survey.

Farm-level wheat prices in Oregon were variable throughout the experiment (Figure 2a), with a long-term upward trend. However, both wheat price and yield were much less stable than input costs. The introduction of government programs in the 1950's stabilized prices somewhat, but this was disrupted in the late 1970's by the energy crisis and the grain embargo against the Soviet Union.

Dividing the index of wheat prices by the index of prices paid for production inputs produces a parity price ratio. There has been a decline in the parity price ratio for dryland wheat farmers since the mid-1950's (Figure 2b). Wheat prices have increased only slightly since 1970, while input costs have risen steadily since the 1950's. A fall in the parity price ratio does not imply long-term negative returns to farmers, provided yields are increasing or unit costs are declining.

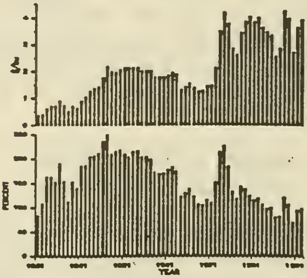

Fig 2. Wheat price (2A) and parity price ratio (2B), 1931-1992 (1992 = 100).

ANALYSIS OF SUSTAINABILITY

Crop yield over time reflects only one of the system's outputs, and is, therefore, inadequate as a measure of sustainability. Even measures of soil organic matter, water quality, soil structure, and other features are inadequate to measure sustainability because there is no clear definition of what is "healthy" (capable of maintaining production without degrading the environment).

Calculating the sustainability of cropping systems requires estimates of income and production costs, and a measure of external costs such as erosion and pollution. External costs (on- and off-

Table 4. Production costs for alternative treatments in crop residue management trials ($\$.\mathrm{ha}^{-1}$)[a].

	Treatment				
	0	---- 5[a] ----		6	8
Item	1931-92	1931-66	1967-92	1931-92	1931-92
I. Input costs ($/acre):					
seed	7.08	7.08	7.08	7.08	7.08
fertilizer:					
inorganic-N		7.58	20.08		
organic					50.00
herbicides	6.40	6.40	6.40	6.40	6.40
machinery:					
fixed	48.58	48.58	48.58	48.58	48.58
operating	33.20	33.20	33.20	33.20	33.20
crop insurance	2.61	2.61	2.61	2.61	2.61
operating capital (interest)	7.36	8.27	9.77	7.36	13.36
conservation	0.30	0.30	0.30	0.30	0.30
labor	11.77	11.77	11.77	11.77	11.77
total for inputs	117.30	125.80	139.79	117.30	173.30
II. Yield dependent costs:					
marketing & handling ($/bushel)					
field transport	0.20				
storage	0.11				
elevator handling	0.12				
assessment	0.02				
Total	0.45				
III. Land use:					
.35 (share) x wheat price x yield					
IV. Externalities:					
erosion ($/bushel)	0.07				
pesticides					

Fertilizer application rate for treatment 5 was increased in 1967 with introduction of semi-dwarf varieties.

farm costs to society) resulting from soil erosion, and pesticide and fertilizer use are part of the true cost of farming. The analysis of sustainability is achieved using an index called Total Social Factor Productivity (TSFP). External costs due to on- and off-site effects resulting from pesticides and erosion are included in the calculation of TSFP.

Off-site costs associated with fertilizers include regulatory costs, health effects of nitrates in drinking water, and environmental effects of fertilizer use. Little evidence is available indicating the extent of nitrate movement into ground and surface water in dryland wheat areas, and its potential cost. Nitrate in water from a shallow (280 ft) but not a deep (400 ft) well at the Research Center currently exceeds the EPA's maximum allowable concentration of 10 ppm. The source(s) and historical trends for nitrates in this well are not known, but an off-site source is most likely.

There are numerous ways in which pesticides can enter non-target portions of the environment. Both costs and benefits are associated with this externality. Costs include regulatory and monitoring costs, health effects on humans, and environmental effects such as reduced efficiency of natural enemies of pests, secondary pest outbreaks, pest resistance, crop and tree loss, and poisonings of fish, wildlife, bees, and domestic animals. Positive effects of pesticide use include reduced cost of weed management in noncrop areas, lower highway maintenance (weeds clog culverts and contribute to roadbed deterioration), and less expense for controlling human allergies from windborne pollen, contamination of feed and food by mycotoxins produced by fungi, or introduction of weeds, diseases, and pests into previously uninfested areas. As with fertilizers, it is difficult to assign values to external costs for pesticides. No pesticides have been detected in well water at the Research Center. In the absence of further evidence, we simply flagged external pesticide costs at $1.00/acre.

Soil erosion losses for each treatment were calculated using the Revised Universal Soil Loss Equation (RUSLE) model. Because the experiment is located on gentle sloping topography, calculated erosion losses are quite low and not representative of losses that occur on steeper slopes throughout the area. Soil losses were calculated at 0.2 to 1.5 tons/acre/year. In contrast, erosion rates of 2-14 tons/acre/year are estimated on sloping land in the Columbia Plateau. Crop productivity losses for erosion rates of 5, 10, and 15 tons/acre were estimated using equations developed by Walker and Young (1986) for similar conditions in eastern Washington. The effect of continued soil erosion on sustainability was then computed.

DEFINING SUSTAINABILITY

To define long-term environmental trends, we need to determine *biological sustainability*. To find out if systems are financially sound, we have to determine *economic sustainability*. We can achieve both by controlling TFSP over time. In this report, biological sustainability was estimated by holding input/output price indexes constant at 1992 levels. This eliminated price fluctuations and confined change to factors that affected productivity. Economic sustainability was estimated by allowing input and output prices to vary. Economic sustainability is thus a composite of both biological change and income/cost considerations. Long-term biological sustainability by itself is not a sufficient condition for economic sustainability. Conversely, economic sustainability is neither necessary nor sufficient for biological sustainability. The critical identifier of sustainability in this analysis is the slope of the trend line rather than a specific number. A sustainable system must have a positive slope to the trend line over time. To estimate the effect of variety improvement on sustainability, data were divided into two periods for analysis: 1931-1966, when a single wheat variety was grown, and 1967-92, when improved semi-dwarf wheats were grown.

CHANGES IN SUSTAINABILITY IN WHEAT/FALLOW SYSTEMS

Trends in both biological and economic sustainability are illustrated in Figure 3 for the 80-N treatment. Biological sustainability (constant price) declined moderately during the 1931-1966 period. This is generally due to declining yield associated with decreasing organic matter in soil. The trend for the 1967-1992 period, after introduction of semi-dwarf varieties, was positive. Improved yield due to varietal selection was able to offset the yield decline brought about by deterioration of the soil resource base.

Economic sustainability (indexed price) shows much greater yearly variability than does biological sustainability. There was a slight trend towards increased economic sustainability for the 1931-1966 period, but a pronounced decline for the 1967-1992 period. Economic sustainability declined despite improved biological sustainability through improved wheat varieties. A pronounced decline in the parity price ratio during this period overshadowed any increase in productivity.

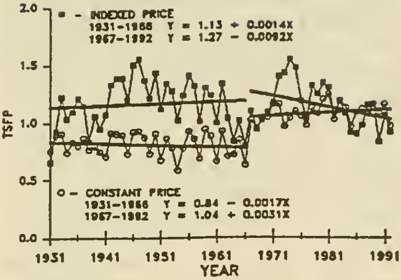

Fig 3. Trends in biological sustainability (constant price) and economic sustainability (indexed price) for the 80-N treatment over two time periods, 1931-66 (no variety improvement) and 1967-92 (variety improvement). Sustainability derived from Total Social Factor Productivity (TSFP) data.

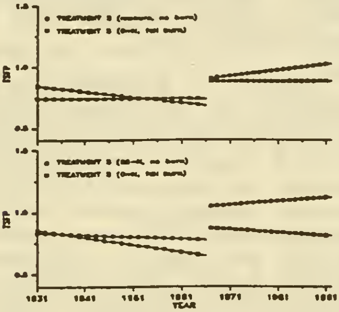

Fig 4. Summary of trends in biological sustainability for four treatments (Manure, Zero-N, 80-N, and Fall-burn) over two time periods, 1931-66 (no variety improvement) and 1967-92 (variety improvement).

A summary of the biological sustainability of the four treatments that encompass most of the effects of residue management is shown in Figure 4. Without the benefit of continuing development of intensively managed N-responsive varieties, three of the four treatments exhibited negative biological sustainability in the 1931-1966 period. These treatments (fall-burn, zero-N, and 80-N) show declining levels of soil organic matter from 1931 to 1987. Degradation in the soil resource base was sufficient to reduce sustainability. The decline was greatest in the stubble burn treatment where crop residues were burned and no supplemental N added. Crop residues are required to replenish the organic matter base in semi-arid regions, and any removal of this resource accentuates the decline in sustainability. Removal of residues for fuel or livestock feed should produce the same effect or greater effect than burning. The 80-N treatment, which most closely approximates current farm practices, had a lower rate of organic matter decline than the zero-N or fall-burn treatments, primarily because residue production was higher and less organic matter was lost.

Adoption of semi-dwarf varieties improved the biological sustainability of all treatments, but had the greatest effect in the 80-N treatment. With improved technology, only the zero-N and fall-burn treatments continued to decline during the 1967-1992 period. The manure treatment has the most favorable sustainability, reflecting adequate nutrient supply and no loss of the soil N resource base. The yield-augmenting effect of improved technology does mask some of the decline in soil organic matter. Because of the long-term decline in the parity price ratio, only two of the treatments show economic sustainability prior to 1967, and none afterward. Economic sustainability increased moderately in the manure treatment during the early period, but declined in the second, reflecting the overriding impact of the falling output/input price ratio.

We were particularly concerned about the effects of erosion on sustainability since this experiment is located on nearly-level land and has a very low rate of soil loss. Organic matter loss without erosion is due to biological oxidation of existing organic matter. It occurs in a wheat/fallow rotation because no residue is produced during the fallow year, but soil biological activity continues. Soil organic matter loss through biological oxidation is essentially independent of soil erosion loss.

The biological oxidation loss of organic matter for the zero-N treatment over 56 years was equivalent to an erosion rate of 6.8 tons/acre/year. Calculated average soil loss using RUSLE was less than 1 ton/acre/year. Thus, if soils are eroding at the presently acceptable T value (5 tons/acre/year), the actual decline in soil quality is equivalent to an erosion rate of nearly 12 tons/acre/year. Similarly, a 2T loss equates to a productivity loss of 17 tons/acre rather than 10.

The predicted effects of 5, 10, and 15 ton/acre/year erosion rates on biological and economic sustainability are shown in Figure 5. The major effect of erosion is to drop profitability substantially due to higher off-site erosion costs and to progressively lower wheat yield on eroded soil. There is also increasing reduction in long-term economical sustainability. And the decline will become progressively more severe when topsoil is nearly depleted.

To examine the sensitivity of biological sustainability to economic conditions, the price of wheat was varied from $2.50/bushel to $5.50 for the 80-N treatment (Figure 6). Price shifts the trend line up or down (affects profitability), but changes the slope of the line (affects sustainability) very little. Systems that are not profitable can not maintain sustainability indefinitely, however.

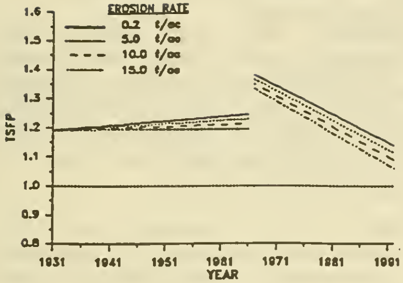

Fig 5. Predicted effect of soil erosion on economic sustainability over two time periods, 1931-66 (no variety improvement) and 1967-92 (variety improvement). Data for 80-N treatment.

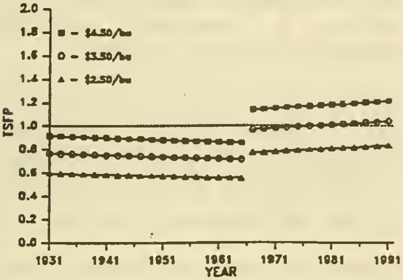

Fig 6. Sensitivity of biological sustainability to change in wheat price for two time periods, 1931-66 (no variety improvement) and 1967-92 (variety improvement). Data for 80-N treatment.

IMPLICATIONS FOR WHEAT/FALLOW SYSTEMS

Without the benefit of technological improvement, biological sustainability declined when the soil resource base declined. With technological improvement, biological sustainability rose substantially. High-input treatments show a positive trend over time, whereas low-input treatments show a negative trend. Without sufficient fertility to increase yield, soil organic matter declined. This indicates that the soil resource base affects long-term sustainability. With high-N input, biological sustainability was profitable and the long-term trend positive. When soil erosion is factored in, sustainability and profitability decline significantly. Both biological and economic sustainability are reduced even when soil erosion occurs at the presently acceptable T value of 5 tons/acre/year.

Factoring economics into biological sustainability affects long-term trends significantly. Early trends (1931-1966) were generally positive due to increasing yield and parity price ratio. Later trends (1967-1992) were generally profitable (>1) but the trend was negative for all wheat/fallow practices. Costs are continuing to rise while wheat prices remain static. While the high input systems are still profitable (TSFP>1), the trend line is distinctly negative. If this trend continues, most systems will lose profitability by the year 2000.

SUMMARY

Biological sustainability is difficult to maintain in a wheat/fallow system. Continuing development of higher-yielding varieties are helpful to increase biological sustainability in the semi-arid Pacific Northwest. Return of adequate crop residue to the soil must be stressed because of the profound effect of residue on organic matter retention and long-term biological sustainability. Present residue inputs in a semi-arid wheat/fallow system are not sufficient to maintain soil organic levels with conventional tillage. Minimum tillage systems must be perfected that yield well. Another possibility is the diversion of wheat/fallow systems to perennial grass periodically (perhaps for 5-10 of every 40 years) to maintain the soil resource base. Strong emphasis should also be placed on adequate erosion control, since any soil loss increases organic matter loss and decreases sustainability. Moderate erosion coupled with oxidation loss produced neutral biological and negative economic sustainability.

All present management practices show negative trends in economic sustainability, mainly due to increasing production costs but static wheat price. This suggests that strong efforts must be made to either strengthen the price of wheat or to intensify research to develop alternative crops to cereals. Crops with improved profitability will be difficult to develop because growing-season precipitation is inadequate for producing most warm-season crops.

ACKNOWLEDGEMENTS

We thank staff of the Columbia Basin Agricultural Research Center and USDA Columbia Plateau Conservation Research Center for assistance, and Drs. Clinton Reeder and Doug Young for reviewing the technical manuscript. We especially wish to thank Roger Goller for his invaluable assistance in developing the figures present herein. This study was funded primarily by the Rockefeller Foundation, with supplemental funding by the USDA-Agricultural Research Service and Oregon State University.

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CONCERNING H.R. 2199
SUPPLEMENTAL INFORMATION

Provided By
Clinton B. Reeder, PhD[1]
For The
National Association Of Wheat Growers
Submitted To
The Environment and Natural Resources Subcommittee,
Committee on Merchant Marine and Fisheries,
U.S. House Of Representatives
June 30, 1994

I appreciated the opportunity to testify before this committee on March 15, 1994. I offer this additional information to the committee as a supplement to the prepared testimony previously submitted for the record. I request that this supplemental information also be entered into the record.

Several times during the hearing on March 15, 1994 reference was made to the "practical idealism" demonstrated by Administrator Browner of EPA. The following comments are meant to be interpreted with this practical idealism in mind, the need to maintain our idealistic vision, but design and implement our programs in a manner which assures a very practical, workable, fundable response by those regulated.

Focus On Progress

We need to focus on assuring steady, reasonable progress, rather than trying to fix today's water quality problems "yesterday", on time lines we are not capable of financing. While there are some exceptional problem areas, such as the Boston Harbor, most communities have generally safe drinking water. The later need technical assistance and guidance documents to help them assess problems, set priorities and begin an ongoing investment program which will eventually lead to comprehensive water quality protection for communities. The special problem areas obviously need more urgent attention.

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If we focus on progress, then each year we should be closer to meeting the ultimate criteria and standards. If we refuse to be reasonable, and demand the whole regulatory pie, or none at all, then not only will we not make progress, we are in fact likely to let the problems get worse before reasonable steps are taken to assure progress towards more comprehensive programs.

If we focus on progress, then we all begin moving steadily in the preferred direction. We will build momentum, increasing awareness across society, and that will help focus priorities. If enhanced water quality is really the pressing concern claimed today, then a steady increase in general awareness resulting from each community investing successfully in its own site specific priorities relative to water quality, will help underscore that priority--and a re-prioritizing of community spending will assure that appropriate water quality investment takes place over the coming decade or so.

Economic Hardship For Farmers, Caused By H.R. 2199

Financial Impact Of The "Direct" Tax On Farmers

As near as I can estimate, the direct tax ($.00845/pound of nitrogen and phosphorus fertilizers, and $.2427/pound of active ingredient in pesticides). will cost the typical wheat farmer somewhere between $1.10 and $1.50 per acre. A fairly typical wheat farm has about 1500 acres of harvested acres each year, hence the cost to the farm (the farm family) will be between $1,650 and $2,250.

Pass-Through Of The Industrial Discharge Tax To Farmers

The farm level affect of the Toxic Release tax on industrial entities included in H.R. 2199 is very difficult to calculate without knowing more about the toxic materials released into the environment by pesticide manufacturing processes, as distinguished from toxic releases not associated with pesticide manufacturing. For some materials, the active ingredients are apparently manufactured in foreign countries, and imported into the U.S., meaning that to analyze the impact of H.R. 2199, an analysts would also need to know what proportion of any given active ingredient was manufactured in this country, and subject to the industrial tax in H.R. 2199.

It seems reasonable to conclude, however, that any industrial tax in H.R. 2199 which is related to manufacture of fertilizers and pesticides will be passed through, at least in large part, to the user of the fertilizer and pesticide materials -- which includes farmers as a major user. Therefore, the above estimate of cost impact upon a U.S. wheat farm should be consider very conservative, likely an estimate of "minimum impact" rather than "likely impact".

Those persons testifying on behalf of the chemical industries have certainly indicated the impact upon them of the industrial tax in H.R. 2199 will be of very major concern.

"Direct" vs "Indirect" Tax On Farmers

It has been implied that H.R. 2199 does not involve a direct tax on farmers. However, the practical reality is that any tax on fertilizers and pesticides, even though collected at an earlier level of the distribution channel for these materials will be passed directly and immediately on to farmers.

I have referenced the "direct" tax on farmers as being the $.00845/pound of fertilizer and the $.2427/pound of active pesticide ingredient provided in Subtitle II of H.R. 2199 concerning amendments to Internal Revenue Code, Subchapter F, Section 4694, (b)(1) and (b)(2).

I referenced earlier as "indirect" taxes on farmers, the industrial discharge taxes provided in Title II, of H.R. 2199 concerning amendments to Internal Revenue Code, Subchapter E, Section 4691, which involves toxic discharge taxes from $.006/pound active ingredient to $63.39/pound of active ingredient.

Do Not Tax Away Farmers Ability To Finance Preventive Measures

A major concern of farmers today is how they will finance the investment required to meet clean water and other environmental mandates, such as those in wellhead protection measures (which especially in rural areas will involve water quality management plans for farmers who are in the draw area for public water system wells); Conservation Compliance programs; Watershed Protection programs; and other such programs already in existence or being proposed.

The tax burden of H.R. 2199 will significantly reduce a farmers ability to finance the modified farming practices and soil structures necessary to reduce the nonpoint risk potential from agricultural land.

Since prevention of water quality problems is repeatedly shown to be far less costly than treatment of contaminated water, it would be far more effective public policy to protect the available farm financial equity for on-farm investment, rather than introduce a tax which further erodes farmers' ability to adopt long term cost effective water quality protection measures.

Funding for research, education and demonstration projects at the farm level to broaden the range of alternatives and develop more cost effective options should not be overlooked as essential ingredients in overall water quality policy.

Farmers' Cost Control Generally Assures Reasonable Pesticide Application Rates

The pounds of active ingredient applied for pest control is directly related to the number, size and species of pests in a crop. Astute farmers strive to control pests when they are relatively few in number and small in size, because that keeps farm operating costs lower, as well as keeping the volume of pesticides applied to as low a level as reasonable. Therefore, the farmers cost control measures are wholly consistent with minimizing the application of pesticides, considering the risk involved.

Wheat farming is a very low margin business, i.e., the earnings per acre are low and falling, costs as a percentage of gross income are high and rising, making diligent ongoing cost control measures absolutely essential to the survival of the farm business.

Farmers Are Certified Users Of Federally Licensed And Tested Materials

Commercial farmers are trained to use pesticides carefully and appropriately. I carry a state private applicator's license to buy and apply pesticide materials. In order to keep my license valid, I must regularly accumulate continuing education credits.

The training provided to farmers involves technical information concerning such things as:

1. calibration of equipment, to assure accurate application of labelled rates;
2. repair and maintenance of application equipment to assure accurate placement and application rates;
3. equipment clean up and storage practices to assure minimal risk of site contamination;
4. mixing and transportation and handling procedures to assure health and environment are not unduly exposes to contamination risks;

5. container clean up and disposal procedures, to assure that residue possibly left in containers does not pose a risk to the environment
6. field re-entry standards, to assure workers are not inappropriately exposed to pesticides following application;
7. health and safety, and emergency response practices to assure those persons exposed to potential health risks in working with pesticides receive appropriate health care as soon as possible following an accident;
8. spill containment and clean up procedures, including appropriate state and federal agencies to whom such events are to be reported; and
9. how to read and use the label information to assure pesticides are used in a safe manner not threatening to the water quality, the general environment, to wildlife or humans.

Almost without exception, the pesticide materials commercial farmers use on their crops have been extensively tested for impacts on the environment and upon the health and vitality of both humans and wildlife; reviewed by appropriate government agencies for toxicity and capacity to leach into groundwater; etc. before they receive a licensed status with EPA, and are authorized to be sold. Licensed rates of application have immense safety factors; the testing usually follows "worst case" scenarios, involving rates far in excess of any normal or economically justifiable rate.

It seems very inappropriate for H.R. 2199 to tax away such a large sum of money from an industry dedicated to resource conservation and which already has in place a significant effort to assure pesticides are used in a manner consistent with federal licensing of the materials.

This tax will reduce the industry's capacity to sustain the protective measures already in place and to make further improvements in various protective measures.

Factors Impacting Pesticide Application Rates, and Farm Level Costs Of H.R. 2199

It is difficult to arrive at a more exact cost to the farmer of H.R. 2199, because, especially for pesticides, the application rates vary widely depending on factors such as, the following:

1. growing season rainfall, which provides the essential moisture, which in turn determines the ultimate growth potential of both crops and pests;
2. soil types, which together with moisture determine the extent and rate of growth of crops and pests, and which determines the moisture available to the crop between rain events over the

growing season;

3. irrigation, which like rainfall and snow melt as moisture sources, provides one of the key ingredients for determining more or less growth of crops and pests -- generally, the greater the moisture, the greater the crop growth, and the greater the pest load in a field;
4. average growing season temperatures, in relation to soil moisture, which affects the ultimate crop development as well as the rate of development, plus the reproduction and growth rates of various weeds, insects and plant disease factors; and
5. weather conditions in the period available for pest control -- windy or wet conditions can delay treatment, letting the pests grow into larger and more difficult pests to control;
6. the cycle of weather conditions during a growing season, which determines whether there will or will not be repeat infestations following a given control activity; and
7. farming practices, which determine the amount of crop residue kept on he soil surface, or integrated into the soil and seed bed -- which determines in large part the presence and development of plant diseases, many of which survive from crop to crop on the residue remaining from previous crops.

The majority of the above factors are to a considerable degree beyond the control of the farmer. He has no choice but to gauge his response, season by season, to the impact of weather, evolving conditions of his natural environment, and public policy mandates, hopefully having enough time and flexibility to respond in a manner that provides adequate funds to finance another cycle in another year. Reducing funds available to the farm operator by the tax burden in this measure, will put the grower in a position of having to choose between investing in pest control and additional environmental protections. In most cases, the reality of circumstances will dictate that the grower first invest his limited funds in measures to protect his crop, rather than environmental protection measures which generally do not generate short term cash benefits to the farm.

Indexing Of Tax Rates vs Development Of New Technology

There should be absolutely no indexing of the tax rates. Deleting the indexing feature from this measure would assure significant pressure upon the U.S. to develop ever more productive, cost effective technology for dealing with clean water concerns.

If these tax rates are indexed, there will be much less incentive to develop more cost effective technology, because periodically the proposed tax would simply raise more tax revenue to offset rising costs.

Indexing such taxes only serves to accelerate the decline of the agricultural industry. The recent research concerning the sustainability of the Pacific Northwest wheat industry certainly underscores the increasing inability of the wheat industry to absorb such added costs, without some attention to enhancing the market price of wheat (for further information, contact Dick Smiley, Director, Columbia Basin Agricultural Research Center, P.O. Box 370, Pendleton, OR 97801).

This "indexing" philosophy in many public policy programs is a primary cause of the U.S. having the current deficit dilemma -- and should absolutely not be built into this measure.

It may look good on the surface, but in the long run, it will not be in the best interest of the overall economy -- in fact, could become a major factor in driving the U.S. chemical industry to foreign countries.

Urban vs Rural Nonpoint Sources Of Pollution

Agriculture is making steady gains on introduction of measures to lessen the threat of water contamination by the materials used in growing and protecting crops, and reducing stream impacts of siltation. The Conservation Reserve Program (CRP) has made a significant impact in this respect, as has the immense Conservation Compliance Program which requires management plans on every farm with designated highly erodible lands. Impaired watersheds are getting attention, especially in agricultural areas.

On the other hand, there are few programs dealing with urban nonpoint sources. In Oregon, for example, the annual runoff from just the major urban areas in the Western one-third of the state is approximately equal to all the water in a lake having 160 acres surface area, and 2.3 miles deep (the height of Mt. Hood, a major peak in the Cascade Mountains). Zoning regulations in some places require dry wells (open holes drilled into the ground) as the means of disposal for storm water from parking areas. Many city dry wells for storm water are not mapped, not permitted, not treated meaning the storm water goes into them, and directly into groundwater without quality monitoring of any kind.

In most states, there is no educational program for urban users of pesticides and fertilizers. There are no significant container disposal programs in urban areas comparable to those already in place for farmers. Lawn irrigation systems are seldom given anywhere near the attention relative to environmental concerns as are farmer irrigation systems.

Why The Urban Outcry?

Most cities are located on "wetlands", and if not on wetlands, at least in areas with relatively shallow water and/or along surface water sources. Why? Simply because when these cities were first founded, wells were all dug by hand, with bucket and shovel. There was no effective means of drilling through deep rock to get into deeper aquifers. Many major metropolitan areas today have major water quality problems largely because for generations they have been permitted to expand in locations which were not good location choices even when they were initially founded.

Impatience, Profits and Clean Water

Impatience And The Cycle Of Capital Regeneration

We are an impatient people, and impatience is immensely costly and above all else, very inconsistent with economic realities. No business can generate cash faster than its earnings rate permits. Competition keeps that earning rate relatively low for most businesses. If the earnings rate is 4-6 percent on assets of the business from year to year, that business requires about 15 to 20 years, depending on the cycle of profits during that time period, to generate enough cash to replace its asset base and provide a return to investors sufficient to encourage them to continue investing in the business.

Forcing an investment rate which exceeds this cash generation capacity jeopardizes the survival of the business. The same can be said for any public institution which tries to spend at a rate faster than is wise, considering its capacity to raise funds through its various taxing and deficit financing mechanisms.

Environmental Protections Are Usually Not Profitable, Especially Not In The Short Term

Environmental protection investments of most businesses do indeed protect the environment, but they do not generally contribute in any significant way to the profitability of the business. Quite the contrary, in fact: the increased investment requirements generally reduce the funding available for research and development of new products and markets, thus reducing the capacity of the business to retain its viability as a market participant.

There are certainly longer term benefits for the greater community from these investments, but we can bankrupt our private enterprise (and our public institutions, too) getting those benefits if we expect too great an investment in them too soon.

As shorter term profitability falls, the business' capacity and obligation to pay taxes also falls, which reduces the tax revenues available to pay public employee wages and the costs of public programs, further overloading the system with financial demands relative to earnings capability.

This is nothing remarkable, just a basic law of nature, the reality that our resources are only capable of a certain rate of benefit generation in a given time period. Spending and investing at a rate in excess of the capital/resource regeneration rate is by definition, "deficit" spending, and will by definition ultimately/naturally/unavoidably lead to a negative overall circumstances for any society which tries to engage in such foolishness for any extended time period.

Profits And The Public Interest

There are those who would lead us to believe that businesses should be willing to sacrifice profits for environmental protection. To a reasonable extent, there may be some truth in that assumption. However, the harsh reality is that profits are an absolute law of nature -- without them, you have no business; without the business, you have no jobs; without jobs, there are no income tax revenues -- either corporate or individual; without income tax revenues, there can be no sustainable government, or economy or social system.

Without reasonable profits, "savings" (surplus of income over expenditures for current consumption), for business or household, there can be no progress in technology, no betterment of lifestyle. Spending tomorrow's income today is like a farmer eating the seed he has set aside to plant the next crop--grossly short sighted.

Environmental Mandates vs The Capital Regeneration Cycle

Environmental mandates which require investment and compliance within a time period shorter than the capacity of the business community to generate necessary funds through their business activity to both pay for the environmental protection and keep their businesses viable, serves in the longer term to reduce, not increase the capacity of the nation to protect the environment. We end up with an economic system not only increasingly unable to pay the cost of environmental initiatives but also unable because of the unrealistically short investment mandates to sustein themselves as global market competitors, meaning loss of jobs and overall economic setback for the economy as a whole.

No wage increase can for long outstrip the earnings capacity of businesses which provide the private sector jobs. No increase in public employee wages and program costs can long outstrip the capacity of business and individuals to pay taxes, unless the public spending taxes through inflation and/or debt, both of which are means of siphoning funds from the economy at a rate faster than can be regenerated by the economy.

The Homeowner Backlash

The current backlash concerning utility rates in urban areas is this identical dynamic at the household level. Homeowners are saying, very loudly, that they cannot afford to continue paying the costs passing through to them for the rapidly rising environmental mandates in the urban areas. Homeowners are finally, like businesses, saying they are being expected to pay environmental protection costs at a rate which far exceeds their capacity to regenerate capital for the household.

American businesses have been saying this for 20 years. Homeowners have been quiet only because it has been just more recently that the environmental policy and programs have really begun to significantly impact the individual homeowner, directly in his pocket book on a regular monthly basis, rather than only once a year via income taxes, which for most people are withheld monthly, keeping them from really feeling the impact of the environmental costs -- until recently when utility bill have risen rapidly.

The homeowner backlash is going to get worse, not better -- especially if the government takes the tack of heavy handed, short time line for compliance, higher standards, high fines and penalties for noncompliance. If the EPA mandates for failed septic tanks were put in place, with monitoring similar to that required for fuel tanks, the homeowner community would come out of their chairs screaming -- and that will happen, as communities begin to fight over what the sources of nitrates are in impaired watersheds. The communities built on high water tables, along surface water, or in historic wetlands are very apt to find that a primary source of water pollution is street runoff, dry wells, and failed septic tanks -- requiring a very high investment by homeowners, because in many cases there will not be a legal way to replace the failed septic tank -- except with a much more expensive technology and/or additional city sewer lines out into suburban areas now dependent on septic tanks.

Prediction: Current Homeowner Backlash Is Only The Tip Of The Iceberg
The homeowner backlash will become much more severe, especially as clean water and solid waste disposal costs are passed on to them, as individual households try to meet all the environmental mandates we are establishing--usually with time lines far shorter than the capital regeneration cycle for households. The only reason homeowners have not already risen up enmasse, is that the focus has been on businesses, which has generated "pain" on only a limited number of persons compared to the population as a whole.

Now, with the mandates increasing applying to the household level of society, households will as a class of citizenry begin crying out in the same manner business has been doing for several years. This will force a new kind of reality into meeting environmental criteria and standards, in general lengthening out the timetable for compliance, and forcing society to provide much greater opportunity for all parties to invest in site specific, higher priority water quality concerns, and postpone those of little or no immediate threat in particular circumstances--which will undoubtedly mean much more emphasis on environmental monitoring, to identify imminent problems, and less short term investing in capital items "just in case" there might eventually be a problem.

THE HEART OF THE CHALLENGE:
REVISE THE GUIDING VISION
TO FIT PRACTICAL REALITIES

1. Enhance Profitability

We must move immediately towards developing means of achieving environmental protection in a manner that enhances, rather than discourages profitable business enterprise, whether farm or forest; fishery or factory.

2. **Develop "Friendly Mandates"**
   We must move toward environmental "mandates" which are friendly to business, communities and individuals from a financial perspective, permitting flexibility and focused on primary threats.

3. **Administer With Compassion, Consider Incentives and Risk**
   We must become much more compassionate in our public policy concerning the impact of current environmental protection philosophy and regulation upon the incentives, risks and latent liabilities of citizens and businesses, so as to avoid discouraging investment, economic development and job creation.

4. **Make "Reasonable Progress" The Goal**
   We must move toward "reasonable ongoing progress", considering the capital regeneration capacity of businesses, communities and individuals, as the primary criteria for successful environmental protection programs.

5. **Focus On Voluntary Compliance, Not Penalties**
   We must move away from the negative incentives of the heavy regulatory stick, fines, fees and penalties and toward the positive benefits of effective public service, research, demonstration, education-information, and recognition/reward for meaningful accomplishment.

ENVIRONMENTAL PROGRAM RECOMMENDATIONS

We must strive much more diligently to develop a cost effective regulatory / environmental protection philosophy, which might include concepts such as the following:

Flexibility, Choice, Progress

1. Focus On Progress, Not Immediate Compliance

Refocus compliance on assuring "steady ongoing progress" rather than "immediate (short time line) overall compliance". Promote steady progress, in smaller projects, over a broader geographic base, rather than massive progress in limited locations.

2. Site Specific, Free Choice Alternatives

Site specific program options, designed to deal progressively with site specific concerns, in an order of priority which considers financial realities, local interest and technical capacity, as well as environmental risks.

3. Free Choice Menu Of Alternatives

Establish standards and guidelines which can be pursued selectively by local communities or private entities, with the primary criteria for continued assistance being "reasonable progress" on one or more priority concerns, rather than "immediate completion" of a full blown, community-wide bundle of concerns.

Enhance the capacity for local communities to truly take ownership of their circumstances, develop solutions that work, and renew local civic pride rather than intensify the resentment toward government agencies which "interfere" locally with few results other than raising everyone's taxes.

4. Local Control, Government Guidelines, Technical Assistance

Local control and initiation, with state and federal guidelines (legitimately guidelines, not mandates in the guise of guidelines), supported by competent technical assistance.

5. Focus Attention On Real Threats

Redesign mandates to focus attention on providing guidelines, criteria and standards but with freedom of choice to the business community or individual to focus their compliance efforts on only those concerns which are (a) threat specific, and (b) site specific.

Where the potential threat is not imminent, and the probability of the threat becoming a significant problem in the foreseeable future is reasonably minor, waive compliance indefinitely, especially for smaller communities and small business.

6. Match Progress To Urgency

Match public assistance to the urgency and magnitude of the environmental risk, investing public funds in a manner which assures reasonable ongoing progress on priority sites, considering cost effectiveness, and actual longer term "imminent risk".

Technology Development

7. Research To Identify New Alternatives

Public Supported Research to identify a broader range of technology alternatives and to maintain an ongoing search for more cost effective alternatives.

8. Technology Demonstrations For Awareness and Testing

Demonstration projects to enhance public awareness, support research, and test alternatives prior to asking for private or community investment.

9. Encourage New Concepts

Encourage all institutions to develop programs to generate ideas concerning environmental protection measures for which there are matching funds available to test and develop, for potential use by that entity and/or for marketing.

10. Enhance Technology Development and Awareness

Broaden the base of slower, steady progress as a means of enhancing the range of cost effective alternatives identified and tested, and enhance the information transfer concerning such to the overall community to facilitate the spread of the technology adoption process.

Incentives

11. Incentives For Private Research and Testing

Support private parties and communities to experiment and try alternatives not yet considered "proven", as a means of encouraging the search for cost effective alternatives and improved technology.

12. Positive Financial Incentives

Provide financial incentive programs for the private sector, which rewards them for developing cost effective alternatives, possibly implemented by encouraging developers to prepare presentations concerning their projects, which can be reviewed via video tape and/or personal presentation to one or more review bodies, in various areas of the country -- possibly in each EPA "District" or "Zone".

13. Establish Reasonable Time lines

Establish time lines for compliance which match the funds generating capacity of businesses, communities and individuals, thus permitting the environmental protection programs essential to become for the most part reasonably "self funding" by the public having to meet compliance standards and criteria;

14. Provide Assistance Which Matches Appropriate Time Lines

Where there are problems needing more immediate attention than possible by extended time lines, based on credible scientific analysis of risk and probability of exposure, provide funding mechanisms which provide for more immediate response, but which also provide the appropriate time line for the business, community or individual to generate the necessary funds, such as the following, administered separately or in some combination or another to fit the needs in particular situations:

(a) loans, and/or
(b) grants, and/or
(c) revolving funds, and/or
(d) loan guarantees, and/or
(e) interest reimbursements, including "negative interest" programs, where the borrower pays back less than the amount borrowed; and/or
(f) for larger institutions, a government guaranteed bond program, permitting the institution to raise funds through the sale to the public of bonds guaranteed by the federal government -- maybe an institution which could do this on a cooperative basis for multiple parties, like an Environmental Financing Cooperative.

15. Loan Repayment Periods To Match Repayment Capacity

If the environmental risk is such that shorter time lines must be established, provide loan programs and/or loan guarantee programs and/or interest reimbursement programs, with repayment periods which match the capital regeneration capacity of the entity faced with an immediate mandate.

16. Recognize and Reward Success

Develop a televised annual "Emmy" awards program for environmental enhancement activity, or if that seems a bit ambitious...

Develop a program to provide an "Environmental Successes" video tape series to the public concerning the various means of dealing with environmental concerns.

Develop an awards program which identifies particularly successful individuals, businesses and communities; documents their environmental protection success and how it was achieved; publicize the accomplishments; and reward them financially for such a contribution to society, especially where there has been a long term commitment to enhance the quality of the environment.

> An outstanding illustration of this type of program is conducted each year in Oregon. The Oregon Wheat Growers League (OWGL), Pendleton, Oregon has had a state-wide Conservation Awards Program since 1946. Each year the OWGL, in cooperation with the local Soil and Water Conservation Districts (SWCD) conducts a conservation awards tour in each county, to survey the farms they think have done an outstanding job of natural resource management. A county winner is chosen, who then competes for the highly coveted state-wide Conservation Farmer Of The Year Award.
>
> At the annual convention of the OWGL, each of the county winner farms is presented to the public via narrated slide show (which highlights the practices used and the benefits thereof) to the audience and the press, as a combination recognition-educational program, following which the state-wide Conservation Farmer Of The Year winner is announced.

Attitude Enhancement

17. Convert Environmentalism To "Public Service" and Away From "Public Damnation"

Refocus on true "Public Service", the enabling of private parties and communities, rather than increasing the public alienation associated with imposed standards, criteria and investment obligations which are increasingly difficult to meet.

Risk Reduction

18. Redefine Appropriate Risk

Redefine our concept of the appropriate level of "acceptable risk". For most environmental concerns, we need to move to a "reasoned probable risk" criteria rather than a "zero risk" criteria, the latter forcing us to pay the unreasonable cost of "perfection" in our environmental concerns. It would in most cases be far wiser to hit 50 percent (for illustration) on two projects focused on the greatest threats in each instance than to hit 100 percent on one project, taking more time and resources than would have been required to hit 50 percent on the two.

19. Reduce The General Financial Risk/Liability Exposure

The cost potential/liability exposure risk is so high at the current time, that the incentive to report spills or make them public in any fashion is negative, especially smaller ones more easily ignored or hidden. Where intentional, gross negligence is obvious, "make the penalty fit the crime", as defined primarily by the extent of negligence of the party responsible for the event.

Where the personal and/or institutional risk exposure is too high, it will serve as a disincentive for investment and job creation, which is not in the best public interest.

We must find ways to reduce or eliminate the risk exposure for those who act with care and diligence. This will put a positive "market" incentive into compliance and prevention investment. for example, we could install a system whereby an individual or institution might accumulate environmental "credits" from year to year by engaging in various actions. Then, in the event of a contamination event these credits could be used to offset potential penalties -- again a positive, "market" oriented incentive system.

Where there is not gross negligence, and especially where diligence can be demonstrated, and an unfortunate event happens anyway, keep the penalty cost to zero or minimal. Reducing the risk exposure where appropriate measures are pursued will enhance the incentive to engage in preventive measures. And if persons, businesses and other institutions could accumulate credits, then when there are accidents, they are much more likely to be dealt with in an appropriate manner.

20. Separate Compliance/Enforcement: From Technical Assistance

In some cases currently, those parties subject to compliance with environmental mandates are hesitant to seek appropriate technical assistance, especially from a public agency because that request for technical assistance can all too easily result in fines and other penalties, rather than reasonable progress in solving the problem at private initiative.

Those facing environmental dilemma must have the assurance that if they seek guidance and technical assistance from an agency responsible for a given mandate, trying in good faith to appropriately deal with the dilemma, that the request will not trigger an enforcement action and penalties.

In Oregon, this separation is successfully managed in our Workmens' Compensation Program, with remarkably positive results. Nationally, the lack of separation between technical assistance and enforcement in Soil Conservation Service programs is causing some severe problems for farmers trying to comply with various mandates.

21. Develop New Cities, On "Environmentally Friendly" Sites

A primary means of controlling the water quality in many areas is to implement policy, such as exists in some states, to cease permitting development which further risks especially the shallow water sources and the surface water. We should, in fact, most likely be considering means of encouraging the development of entirely new cities, in areas where the environmental risks would be minimal and/or where from the outset, development might occur with preplanned means of dealing long term with environmental concerns in a cost effective manner.

Developing new cities in this manner, would most likely require some "compromise"in existing environmental regulation, to enable us to make progress in a direction which overall leaves us with an increase in water quality, improved environmental protection and greater capacity for industrial growth and job creation -- hopefully in a manner which will be globally competitive.

SOLUTIONS TO THE DILEMMA OF INADEQUATE FUNDING FOR ENVIRONMENTAL ISSUES

It has been suggested that the U.S. has only two options: one, find some new source of money to fund the clean water programs, or two, repeal the Clean Water Act. That seems to be a bit like saying a sick person only has two options: get well, or die. A little practical thinking will surely suggest a myriad of options other than these extremes. There is a very practical, very workable third alternative: modify the clean water programs in a fashion which provides more realistic targets, targets which are matched to the capacity of businesses, local communities and individuals to generate or save sufficient funds to pay the cost of compliance, focusing early attention on the major threats, permitting much greater time to comply with standards and criteria on lesser threats, on a site specific basis.

The primary problem at the current time is that government all too often is acting like government is the only entity capable of thinking of reasonable alternatives. That is not a valid public service attitude.

Environmental groups too often act naively, without much direct experience, as if those who invest their lives and life savings in natural resource activities do so simply out of greed and lack of caring for future generations. Those who would stop current activity without any replacement, too often have little or no comprehension for, nor compassion for the consequences of such greedy and self serving attitude.

Those who own and manage the nation's natural resources too often act as if reasonable, profitable alternatives do not, and cannot exist – or, beleaguered by government and environmentalists, they resist and try to hang on to tried and proven ways of operating their businesses, because they see no alternatives which will help them salvage their investment in the businesses which others would shut down.

Much greater attention must be given to programs where government acts to enhance the pride and accomplishment of local persons, businesses, communities and other institutions, by providing technical assistance, demonstration, research concerning alternatives, and recognition for success efforts. Environmental interests and natural resource owners and operators must learn to share their interests and concerns, and with compassion and caring, develop together solutions which reduce conflict and which enhance the future well being of all parties concerned. A primary role for government is to enhance such an interchange of ideas and concerns, and assist in developing workable, financable alternatives.

At the present time, we are having massive funding dilemmas in large part simply because we are mandating that too many standards and criteria be met in much too short a time period, which is siphoning far too much money out of other priorities, throwing the overall operations of businesses, communities and households out of balance, threatening their viability, in fact in many instances threatening their very survival – primarily because as a society we are being intimidated into thinking and believing we have to solve an overall bundle of environmental problems hundreds of years in the making by "tomorrow".

Too many philosophies; too many ideas and too much idealism in proportion to valid understanding of the practical realities of resources and finance; too little informed debate; too little attention to truth and good science by the media, which tends to feed discord rather than contribute to understanding and workable solutions.

If we do not want clean water and other environmental protection programs to literally bankrupt this country, if we truly want to make good progress toward a cleaner, more pristine world, then we have no choice but to develop a different game plan than we now pursue. In some fashion or another, we must glean the central truths from suggestions such as those above about what will work and what will not work, and get on with making "practical idealism" profitable, sensible, and of general benefit to not only future generations but also this current generation.

RESPECTFULLY SUBMITTED,

CLEAN WATER ACTION

TESTIMONY OF

DAVID ZWICK

PRESIDENT, CLEAN WATER ACTION

ON

H.R. 2199, .

"THE POLLUTER PAYS CLEAN WATER FUNDING ACT"

BEFORE THE

COMMITTEE ON MERCHANT MARINE AND FISHERIES

MARCH 15, 1994

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RECYCLED PAPER

TESTIMONY OF
DAVID ZWICK, PRESIDENT, CLEAN WATER ACTION
ON H.R. 2199, "THE POLLUTER PAYS CLEAN WATER FUNDING ACT"
BEFORE THE
COMMITTEE ON MERCHANT MARINE AND FISHERIES

MARCH 15, 1994

Mr. Chairman, I am David Zwick, President of Clean Water Action, one of the nation's largest grassroots environmental organizations, with over one million members nationwide.

Clean Water Action was founded over twenty years ago to enable people to realize their right to clean, safe and affordable water. Clean Water Action's first project was to help write and lobby for passage of the 1972 Clean Water Act. The Clean Water Act transformed the largely ineffectual Federal Water Pollution Control Act of that time into one of the nation's most important environmental statutes.

The goal of the original Clean Water Act was to make all water bodies "fishable and swimmable" by cleaning up and protecting America's rivers, streams, lakes, wetlands and oceans. Although we have made substantial progress is reaching that goal, we still have a long way to go.

Since lobbying for passage of the original Clean Water Act, Clean Water Action has continued to monitor the law's implementation, defend it against weakening changes and press for improvements.

I am pleased to be here today to express Clean Water Action's strong support for H.R. 2199. I particularly want to commend Chairman Studds and his staff for taking a courageous lead in addressing Clean Water Act funding issues almost everyone else would prefer to ignore or to dismiss as too difficult to resolve.

As one who has been involved in debates over clean water for more than 20 years, I want to emphasize four points to members of the Subcommittee today.

First, the nation's water quality infrastructure is as important a national investment as our highways or our air transportation system, and it deserves similar priority in federal financing. Millions of jobs depend directly and indirectly on water quality protection and improvement. In addition, building additional water quality infrastructure is the cheapest job creation investment the federal government can make.

Second, it is premature to declare the 1990s the decade of non-point pollution control on the grounds that point sources -- particularly sewage discharges -- are no longer a major national pollution problem. While non-point pollution is a major threat to water quality and must be addressed as Congress reauthorizes the Clean Water Act, the job of cleaning up discharges from factories and sewage systems is, at best, half done.

Third, we must develop new water quality policy tools to supplement the Clean Water Act's traditional command-and-control regulatory structure. Command-and-control regulation will continue to be the backbone of the Act, but tools like the "polluter pays" fees proposed in H.R. 2199 must be used to put market forces to work if we are to make rapid progress in water quality improvement. The federal government's regulatory machinery is cumbersome, underfunded and slow.

Fourth, H.R. 2199 takes what could be the federal government's first serious step and fastest means of cutting a very serious source of water pollution, agricultural runoff. Even if Congress acts this year to strengthen Section 319 of the Act, H.R. 2199's fee provisions could have an impact on poison agricultural runoff before EPA or any state could act by regulation.

Water Quality and Jobs

H.R. 2199 takes the long overdue step of recognizing that the nation's water quality infrastructure plays a critical role in the nation's economy by creating a federal Clean Water Trust Fund, supported by user fees on water polluting activities and products, and on large water users. Years ago Congress recognized that an interstate highway system was becoming similarly critical to the nation's economy and established the initial highway trust funds. Without those funds and their dedicated revenues from the federal gasoline tax, it is unlikely the system would have been complete. It is long past time for us to take this step in the field of water quality, because water pollution is a major threat to a number of key American industries.

The U.S. commercial fishing industry, for example, has benefited over the past two decades from a major increase in fish and shellfish consumption, from annual consumption of 12.5 pounds in 1972 to 15 pounds in 1990. Industry growth is directly reflected in employment figures: in 1972, more than 230,000 Americans were employed in commercial fishing, processing and wholesaling, and by 1988 that figure had grown to nearly 364,000.

As more and more Americans seek to limit their consumption of fat, the growth in seafood consumption is expected to continue, with per capita consumption reaching over 17 pounds per year by the turn of the century. This would require up to a 30 percent increase in supplies of edible seafood products to meet the demand, with major continuing employment increases likely. American consumers spent $35 billion on seafood products last year, according to the Department of Commerce. An additional $7 billion of fish product were sold to commercial trading partners.

The U.S. recreational fishing industry and associated travel businesses, benefiting from the sport's position as Americans' most popular outdoor recreational activity, had more than $24 billion in sales in 1991. The Sports Fishing Institute calculates that these $24 billion in purchases result in an additional $70 billion in indirect expenditures, over 900,000 jobs, and over $3.3 billion in federal, state and local taxes.

In all, fishing and related industries account for $111 billion of the Gross National Product, and provide work for 1.5 million Americans.

Waterfowl hunting is also big business in America. Over 3.2 million hunters engaged in the sport in 1985, according to the Department of the Interior, and they spend nearly $800 million.

In addition, other water-related sports and recreation (outdoor swimming, motor boating and others) are among Americans' favorite pastimes and account for a large amount of recreational and vacation spending in the United States. The recreational marine industry alone provides jobs to about 600,000 people.

The nation's beaches, too, are big business. More than 23 million people visited national seashores and lakeshores in 1988, and a 1985 study identified more than six million beach-goers nationwide. In Florida alone, beach users generated a total of $2.3 billion in benefits to the state in 1984, including 84,000 jobs.

While these data are sketchy and incomplete in many areas, they give a broad idea of just how important water quality is to major U.S. industries and many, many Americans who work in water-dependent businesses. A large number of jobs depend on continued progress in improving water quality, which requires not only a strong federal regulatory program, but continued federal investment in helping cities meet the massive costs of controlling urban water pollution.

Cleaning Up Sewage Discharges: A Job Half-Done

While Congress should enact strong new nonpoint source controls quickly, a real attempt to grapple with those issues should not be allowed to obscure the reality that the job of cleaning up sewage discharges and other point sources is not complete.

We have made enormous progress since 1972. Raw municipal sewage discharges into water bodies have been drastically reduced: 74% of the U.S. population was served by sewage treatment plants in 1985, compared with only 42% in 1970. However, in 1988 more than 26 million people continued to be served by publicly-owned treatment works (POTWs) still incapable of secondary treatment. Equally important, a 1992 study of 14 cities with combined sewer overflow systems found that they dump 165 billion gallons of raw sewage and polluted stormwater into surface waters each year. During the 1990s, communities across the country will need to build expensive new facilities to meet Clean Water Act requirements.

EPA's most recent estimate identified over $155 billion in new investment by local governments -- primarily in sewage treatment facilities -- which will be needed to meet existing requirements of the Clean Water Act over the next 20 years.

When the costs of combined sewer overflow projects in 1100 municipalities, storm water controls, polluted runoff controls and national estuary programs are added, the bill comes to over $200 billion between in the next two decades. At the same time local governments must meet major new requirements of the Safe Drinking Water Act in the 1990s that EPA failed to implement over the past decade.

Major cities face staggering multi-billion-dollar clean water bills. For example:

- Between 1988 and 1998, New York will have to invest $10.2 billion in its water infrastructure.
- Between now and the turn of the century, Boston faces a $7 billion bill for water and sewer improvements.
- Los Angeles faces a $3.9 billion bill for sewage treatment infrastructure alone through 2002.
- St. Louis requires over $3 billion in investments in combined sewer system control, sewer line rehabilitation and wastewater treatment plant upgrades. One of St. Louis' sewage treatment facilities sill discharges primarily-treated effluent which is dingy, brown and clearly observable as it moves downstream in the Mississippi River.
- San Diego needs to make between $1.3 billion and $2.5 billion in investments to upgrade the city's sewage treatment system to reduce contamination cause by sewage effluent discharges into the Pacific Ocean.
- Atlanta, Honolulu, Portland, Richmond and New Bedford (MA) face water infrastructure bills ranging from $150 million to $800 million.

The water and sewer bill increases required to meet needs such as these with the current, minimal level of federal financial assistance are enormous. For example:

- Boston will be forced to raise water and sewer bills by 13%-30% per year between now and 2000.
- Atlanta residents faced a 30% water and sewer rate increase in 1993.
- Between 1987 and 1992, sewer rates in Los Angeles increased by 150%, and another 28% increase took effect in 1993.
- New York's water and sewer rates increased 20% in 1992, and increases of 13%-17% are planned each year through 1996.

The impact on residents of small communities can be even more severe. In Roosevelt, New Jersey, a small town of approximately 850 people, sewage treatment system upgrades caused water/sewer bill increases averaging $140 per month per household, or $1,680 per year.

The responsibility for requirements which cause rate increases of this magnitude has become a hot potato between federal and local government officials. Local governments have mounted an aggressive campaign against federal environmental (and other) mandates imposed upon them without accompanying funding. Federal officials respond either by arguing that local governments are polluters like anyone else, or by racing to cosponsor the Kempthorne/Condit bill and calling for a major rollback of federal environmental standards.

Unfortunately, the Clinton Administration has so far followed a somewhat similar path in avoiding clean water funding issues. Despite its strong pro-clean water rhetoric, the new Administration has championed major regulatory strengthening of the Clean Water Act -- for which it should be applauded -- at the same time that it has refused to step up to the plate on clean water funding issues. Last year, sewage treatment funding under the Clean Water Act was slashed to only $1.2 billion when the Senate rejected the President's economic stimulus package. Even a months-long struggle by EPA Administrator Carol Browner resulted in only minor restorations of the funds lost. This year, the Clinton Administration has proposed continued reduced funding. The President's Fiscal Year 1995 budget includes only $1.6 billion in federal sewage treatment funding, and proposes to end federal contributions entirely in 1998.

The Administration and Congress cannot ignore the funding issue, hoping to defer it to another day. The political reality is that residential water and sewer users will not be able to bear the full cost of the absolutely essential sewer and drinking water system upgrades which must be made in this decade. Local government budgets are so constrained that they cannot absorb the increased costs alone. Strong federal financial assistance is absolutely necessary -- if we continue to be committed to progress in improving and protecting water quality.

Supplementing Command-and-Control Regulation

The "polluter pay" financing approach in H.R. 2199 is both a critical element in resolving the Clean Water Act's funding crisis, and an important innovation in federal pollution control.

Command-and-control regulation has been the backbone of the Clean Water Act, and it will remain so. But in the area of water as in air, pesticides, and hazardous waste disposal, we know that the federal regulatory machine has enormous difficulty formulating regulations for broad classes of polluters -- particularly classes with significant political clout. The machine moves slowly, goes only as far as it is forced by outside pressure, stalls frequently and must be kicked regularly by the courts to be restarted.

Examples of environmental regulatory timidity and delay are legion:

- Scores of standards required by the Safe Drinking Water Act were not acted upon by EPA until Congress wrote its own regulatory timetable for the agency in 1987;
- Hazardous air pollutant provisions of the 1977 Clean Air Act Amendments produced little action until Congress set a similar timetable in the 1990 Amendments;
- Regulations implementing the stormwater provisions of the 1987 Clean Water Act amendments have been bogged down at the agency for more six years.

If history is any guide, provisions Congress might enact in 1994 to address non-point pollution will not have real impacts until the late 1990s at best, and at worst until after the turn of the century.

It is past time for U.S. environmental policy to begin to enlist the marketplace in encouraging environmental protection on the part of major polluters. No regulatory mechanism can move as quickly as an increased price to alter behavior by businesses and consumers. It is time to begin to incorporate environmental protection in the price of doing business.

Many environmentalists have feared that "pollution fees" would inevitably become a license for industry to pollute. Chairman Studds' bill offers us a different concept, and one

I believe the environmental community should embrace. H.R. 2199 does not substitute fees for regulation, but, instead, supplements the existing regulatory structure with a fee system. That system provides point source polluters with an immediate financial incentive to assess alternatives to continuing to discharge toxic chemicals or manufacture chemical products which produce poison runoff. It does not exempt them or users of their products from Clean Water Act regulatory requirements, but merely adds the requirement that while they pollute, they pay.

Agricultural Runoff: America's Number One Source of Water Pollution

Poison runoff stemming from agriculture, mining, urban development, logging and other non-point sources causes more water pollution than any other source. Agriculture alone is by far the number one source of water pollution, responsible for two-thirds of all polluted river miles and one-half of all polluted lakes.

According to state reports compiled by EPA in 1990, runoff from agricultural operations damaged over 100,000 river and stream miles and almost two million lake acres across the country -- imperilling drinking water, killing fish and threatening endangered species.

Excessive use of hazardous pesticides and fertilizers constitute a substantial portion of the immense problem with agricultural runoff. Approximately 430 million pounds of pesticides were applied to crops in 1987. A 1980-89 report showed that 11.2% of river miles in the United States suffered high pesticide levels.

Use of artificial fertilizers doubled in the period from 1964 to 1984, as large scale agribusiness bought up family farms and increased use of fertilizers and pesticides to boost yields. This dramatic increase in the use of fertilizers has seriously increased levels of nitrogen and phosphorous in water bodies. These are harmful to fish at high levels and at lower levels contribute to algae buildup in water bodies through eutrophication. Nitrogen fertilizer use in the United States tripled between 1960 and 1981.

The original Clean Water Act took note of the need for a holistic approach to dealing with water pollution, including non-point sources like agriculture. Subsequent revisions have strengthened language to contain poison runoff, including the addition of Section 319 in 1987. Unfortunately, the majority of state programs developed under Section 319 are ineffective, lack focus and are uncoordinated with other plans effecting key watersheds.

Clean Water Action strongly supports legislation introduced last year by Congressman Oberstar (H.R. 2543) which bolsters non-point pollution control programs in part by making restoration of critical watershed areas a top priority. While many of the reforms found in the Oberstar bill and in some parts of the Clinton Administration's reauthorization proposal to address existing non-point pollution problems are a step in the right direction, the success of this and other new programs rely on a key ingredient -- money.

The total appropriation for Section 319 over the last four years has been an inadequate $200 million. EPA estimates that over $8 billion will be needed over the next 20 years to assist states in developing their watershed management plans, for technical assistance and enforcement personnel, and for program staffing at all levels. The President's proposal for Clean Water reauthorization calls for an increase from $50 million to $100 million per year in federal grants to states for watershed management programs.

H.R. 2199 provides an innovative solution to the interconnected problems of poisoned agricultural runoff and inadequate funding. By placing a fee on the production of all fertilizers and pesticides, a market-based incentive will be created to reduce use of a wide range of agricultural products which create poison runoff. The Committee has estimated that $1 billion per year can be raised from the agriculture-related fees imposed by H.R. 2199, and the bill allows up to 15% of annual capitalization grants to the SRFs to be used for non-point pollution programs.

* * * *

Mr. Chairman and members of the Committee, I appreciate having been invited to testify before you today. Clean Water Action strongly supports Chairman Studds' legislation and will work with him, his staff and other members of this Committee to move it through the House as Clean Water Act reauthorization is considered.

CLEAN WATER ACTION

TOP TEN REASONS TO SUPPORT THE "POLLUTER PAYS CLEAN WATER FUNDING ACT" -- H.R. 2199

1. The polluters, not the victims of pollution -- the taxpayers and ratepayers -- should be held responsible for paying for cleanup.

2. H.R. 2199 is a constructive solution to the problem of financially strapped cities and states pushing for repeal of "unfunded federal mandates," including important public health protections embodied in the Clean Water Act.

3. Water quality problems are escalating, threatening public health. Funding is desperately needed to upgrade sewage treatment facilities, manage watershed areas and wetlands, etc.

4. Making polluters pay per ton of pollution (and by toxicity) gives a market-based incentive to lower level of toxic discharges. " An ounce of prevention is worth a pound of cure."

5. Placing a fee on the production of pesticides and fertilizers will help encourage reduction in poisoned agricultural run-off (non-point source pollution), a major source of water pollution.

6. The Studds bill encourages water conservation by placing a fee on the largest commercial and industrial users of water.

7. Taxpayers and ratepayers are currently assuming a disproportionate share of the costs for cleaning up the nation's water resources. Sewer bills around the country are skyrocketing.

8. Fishing, tourism and other industries will continue to suffer without major improvements in sewage treatment and other water quality protection programs.

9. Investing in sewage treatment and other infrastructure creates jobs. EPA's Carol Browner estimates there are 50,000 jobs created for every $1 billion invested in wastewater treatment projects. Money spent on environmental protection today will save the country far more in eliminated site clean up and restoration projects in the future.

10. The alternatives to the Studds bill are poor: roll back environmental and health protections, or stick taxpayers/ratepayers with an even greater tab.

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RECYCLED PAPER

Portland Press Herald

Tuesday, February 22, 1994 3B

MAINE/NEW ENGLAND

Water pollution projects languish as sewer rates soar

● The Clean Water Action group wants legislation to make polluters, not taxpayers, pick up most of the costs.

Associated Press

Water pollution projects are languishing from inadequate funding in Maine. Meanwhile, local sewer rates are soaring, according to a report released Monday by an environmental group.

Clean Water Action and several other organizations that endorsed the report came out in support of federal legislation that would place more of the cost of cleaning polluted water on polluters instead of property taxpayers.

"People are fed up with paying ever increasing sewer and water rates while beaches and waterways continue to be polluted," said Doug Bogen of Clean Water Action.

"It's time to identify new clean water funding sources that don't put all the burden squarely on the backs of taxpayers," he said.

The report said 35 percent of the shellfish beds along the coast have been closed because of wastewater contamination or lack of resources to certify them as safe. Also, beaches in the Portland area routinely closed, Bogen said.

Inland fish consumption advisories have been issued on 236 miles, or 22.5 percent, of Maine's largest rivers because of dioxin contamination. And 21 percent of Maine's lake acreage is not swimmable or fishable, it said.

The paper industry is the single greatest contributor to toxic waste in Maine's rivers, the report said.

"What we're proposing will serve notice to the paper industry that if they continue to use our rivers as a waste disposal, they're going to have to pay a price, literally," Bogen said.

The report said it will cost more than $1 billion to finance projects to meet current clean water standards over the next two decades. The state has been receiving about $26 million per year in federal loan guarantees.

As a result, the report said, residential sewer rates have risen an average of 85 percent over five years in Maine's seven largest cities.

The group urged support for federal legislation that would put fees on toxic waste generators, producers of agricultural chemicals and commercial water users.

Rep. Tom Andrews is a co-sponsor of the legislation.

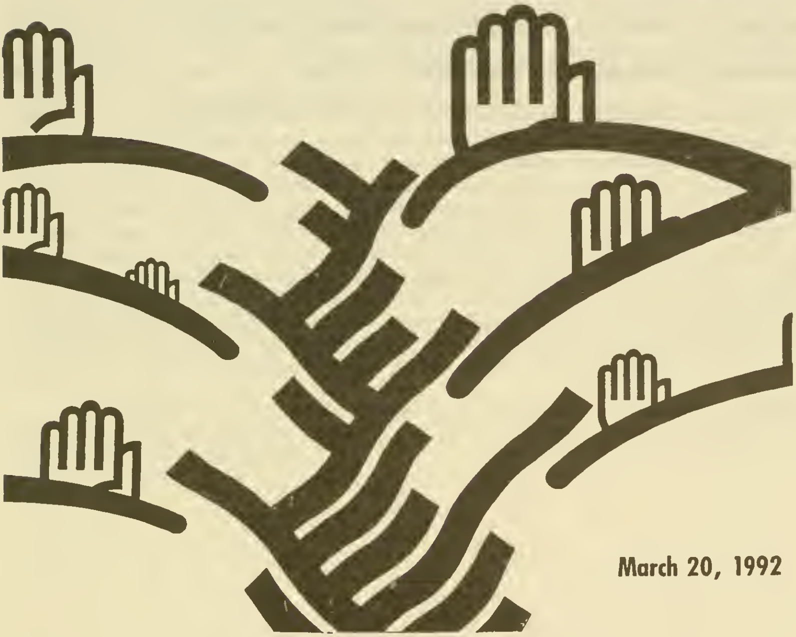
"Access to clean waster is a basic right that all Americans should share," Andrews said.

A Report on Clean Water Investment and Job Creation

92-09417

Prepared for:
National Utility
Contractors Associ

Prepared by:
Apogee Research,



March 20, 1992

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CLEAN WATER INVESTMENT AND JOB CREATION
EXECUTIVE SUMMARY

This report summarizes the job creation effects associated with investment in clean water facilities. Every $1 billion investment in water and sewer projects generates as many as 57,400 jobs, a figure somewhat greater than the number of jobs generated by public works investment in general.

Water and sewer capital stock is an indispensable component of our national infrastructure because clean water is essential to life as well as to the standard of living. Without clean water, human health and environmental integrity deteriorate, the economy cannot flourish, and the ability to compete is inhibited. Clean water investment must be a national priority.

The lasting economic benefits of clean water investment have been demonstrated. Water and sewer facilities preserve national wealth through the removal of contaminants from a vital natural resource. Furthermore, water and sewer facilities bring forth higher private sector profits, act to spur additional private investment in plant and equipment, and work to improve growth in labor productivity. Public investment in these facilities pays for itself through the creation of a larger tax base. This report centers on the fact that clean water facilities also generate considerable employment opportunities.

A number of public works studies have been published on the subject of job creation. These studies are analyzed in this report in order to estimate the current number of direct, indirect, and induced jobs associated with water and sewer facility investment. The total number of jobs generated per $1 billion (1991 dollars) in water and sewer projects is at least 34,200 and could be as high as 57,400. The magnitude of this range is particularly significant in light of the nation's massive, documented clean water facility needs. For example, the United States Environmental Protection Agency recently estimated the total 20-year design needs for publicly owned wastewater treatment facilities at $111.5 billion ($1991) -- needs which represent 3,814,468 to 6,402,060 jobs for American workers. Finally, existing research indicates that the job creation effects may be more extensive for water and wastewater investment than for most other areas of public works, though all provide significant economic benefits.

In conclusion, the employment ramifications of clean water investment substantially increase the value of a national priority that is wholly justifiable on other economic, public health, and environmental merits.

CLEAN WATER INVESTMENT AND JOB CREATION

INTRODUCTION

In recent years, a great deal of attention has been focused on infrastructure investment needs. Construction, rehabilitation and maintenance of important water and sewer projects, also known as environmental infrastructure, have been postponed in a number of instances, resulting in deteriorating conditions in our nation's clean water capital stock. At the same time, demand for environmental infrastructure has outstripped existing capacity. The problem is compounded by government initiatives, such as the Clean Water Act, which mandate new and improved facilities.

In a 1990 study commissioned by the Clean Water Council,[1] Apogee Research estimated that the total investment required to meet drinking water capital needs for the period 1993-2000 could be $51.9 billion ($1991), including $7.3 billion ($1991) to satisfy new regulations. Given past trends in investment, it was estimated that needs during this eight year period could exceed planned outlays by $18.2 billion for drinking water capital. The shortfall in wastewater capital is expected to be even more dramatic, with total needs, including replacement of older capital, expected to total as much as $124.9 billion ($1991). Based upon past trends and investment, the estimated national shortfall could be as high as $65.7 billion aggregated over the same eight year period. The combined drinking water and wastewater treatment shortfall could therefore reach $83.8 billion ($1991) for the 1993-2000 period. This shortfall is only a rough estimate because projected captial needs, as well as projected outlays, could turn out to be substantially higher or lower. More recently, the US EPA estimates total 20-year design needs for publicly owned wastewater treatment facilities at $111.5 billion ($1991). Other studies demonstrate higher needs.

Addressing the documented needs in environmental infrastructure is important in terms of public health, a point made painfully clear by the recent cholera outbreak in South America and beach closings in San Diego, CA. Environmental infrastructure also plays a key role in economic well-being -- enhancing private sector productivity and increasing private profitability, thus supporting and stimulating private investment in new facilities and equipment as well as increasing public tax revenues.[2] In fact, a one time $2.5 billion investment in water and wastewater facilities (1% of the net stock of clean water capital as of the end of 1989) is self-financing in the space of less than a decade.[3]

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[1] Apogee Research, *America's Environmental Infrastructure: A Water and Wastewater Investment Study*, Clean Water Council (December 1990).

[2] See works by David Aschauer, including Chapter II "Effects of Investments in Water and Wastewater Infrastructure on Economic Growth" in *America's Environmental Infrastructure*, op. cit.

[3] See page 23 in *America's Envrionmental Infrastructure*, op. cit. This pay back period assumes a annual depreciation rate of 2.5%, an annual maintenance investment of $.062 billion, an average tax rate of 15%, and a discount rate of 10%.

The purpose of this report is to demonstrate that investment in water and wastewater facilities generates a considerable number of construction and non-construction jobs. The jobs-creation benefit can be put to greatest advantage when aggressive government intervention is used to stimulate a sluggish economy.

This report prepared, by Apogee Research Inc., of Bethesda, Maryland, for the National Utility Contractors Association, summarizes the job creation effects associated with several types of public works expenditures with a focus on water and sewer projects. A number of existing studies were selected for review to gauge the anticipated job creation potential of public works investment. "The primary objectives of the report are to:

- Help policy makers estimate the job creation potential of an expanded water and sewer investment program by establishing the relative magnitude of the jobs creation multiplier; and

- Help policy makers prioritize public works investment projects in terms of job creation effects by evaluating the differences among sectors in employment impacts. "

All estimates presented in this report have been adjusted to account for inflation in construction costs from the study period to 1991.

TERMINOLOGY

New infrastructure investment engages more than the on-site labor and capital used to construct water and wastewater projects. First, any project must be supported by materials purchased from other sectors. Second, the labor used in construction and in supporting sectors receives income that, in turn, is spent on a variety of goods and services, thus stimulating other areas of the economy not even remotely related to the investment project at hand. That is, new investment generates employment at three levels:

- Direct: Direct employment effects result from initial outlays in the construction sector and include all labor directly involved in planning and building the project. Employment effects basically coincide with the construction phase of the project.

Direct employment opportunities are likely to be filled by local labor markets close to the project. Professions and trades which stem directly from investment in environmental infrastructure include planning, engineering, bonding, legal services and insurance, manual labor, heavy equipment operation and other specialized construction skills, safety and supervision.

- Indirect: Indirect employment effects are generated by construction project purchases from other sectors to support investment activity and include incremental employment in supporting industries such as mining and raw materials production, transportation of materials and labor, equipment manufacture, supply and maintenance, communications -- additional employment created to generate the services and products needed to support construction of the project. Indirect employment could also include provision of temporary housing or other support for labor temporarily relocated to work on a specific project.

Like direct employment, indirect employment effects are created shortly after the investment project is initiated. However, indirect employment can be more widely distributed, depending on where the industries producing the supporting goods and services are located. For example, a sewer project in one state may use pipes manufactured in another state, thus investment in a sewer project generates indirect employment benefits in that other state.

- Induced: Induced employment is part of the multiplier effect inherent in a complex economy with specialization in the provision of goods and services. Because we depend on each other to satisfy our economic needs, every increase in employment and income in one sector is translated into demand for goods and hence employment supplied from other, totally unrelated, sectors. Thus induced employment from investment in public works includes the employment effects in the rest of the economy traceable to the initial project investment; these are stimulated by increased household expenditures of families benefitting from direct and indirect employment effects.

In general, induced employment will trail direct and indirect employment. The length of the lag depends partially on how fast the consumption spending occurs and partially on the supply of labor and materials. Induced employment is most widely dispersed of the three effects since it is not confined to locally-provided needs but also includes goods and services that are "imported" from other regions to address household demands. These can include employment in such diverse sectors as processed foods, recreational equipment, vehicles, travel, household durables (refrigerators and washing machines, for example) -- that have no direct engineering connection to the initial investment stimulant.

Induced employment can also include the new employment generated in industries attracted to an area by the improved infrastructure, which increases accessibility to materials, markets, and labor or otherwise reduces costs of production. That is, this category encompasses employment due to existence of the new infrastructure rather than construction of the new infrastructure. For example, a newsprint manufacturer may choose to locate a new plant supplying southeastern newspapers in a certain region rather than elsewhere because the wastewater treatment plant just constructed there is better equipped to handle the volume and types of waste generated by the plant at a cost that will sustain the manufacturer's competitive position. Drawn by the infrastructure constructed in the area, this manufacturing establishment will generate new jobs for local labor -- an effect induced by the initial infrastructure investment.

JOB CREATION: SEWER AND WATER INFRASTRUCTURE

Estimates of job creation per $billion of expenditure on selected sewer and water infrastructure projects are shown in Table 1. Because of the variation among studies in their focus, the employment effects are not broken down the same way for all -- some estimate direct effects only, some present an aggregated figure encompassing all three effects. This somewhat restricts the ability to compare studies and derive general numerical conclusions; however, we can identify general patterns and magnitudes.

Although direct job generation generally can be predicted with greater accuracy than indirect and induced, there is still a significant variation among studies in their estimates of direct employment effects for investment in water and sewer projects. Nonetheless, the magnitudes are similar and indicate that investment of $1 billion in such infrastructure will generate between 6,400 and 15,600 jobs directly involved in project completion. Estimates of indirect effects vary widely among the three calculations presented, but could be as large as 13,600 jobs per $billion (Bureau of Labor Statistics (1990)). Total effects, including direct, indirect, and induced, have been estimated at 34,200 jobs per $billion (Bezdek & Hannon (1974)) to 57,400 jobs per $billion (Vernez et al. (1977)). The estimated $83.8 billion ($1991) shortfall in funds for water and wastewater capital needs for the period 1993-2000 could represent 2,865,900 to 4,810,000 job-years of employment.

Differences among estimates can be explained in large measure by estimation methodology, different years of basic data possibly reflecting differences in inter-sectoral relationships (although all estimates were converted to $1991), different capital intensities of individual projects, and -- in one case -- by the different geographical focus (regional rather than national).

For example, Sulvette and Thompson (1975) estimated that 7,300 direct jobs per $1 billion dollars of expenditure would be created by construction of sewer lines while Vernez et al. (1977) estimated that the direct effects of sewer lines would be 14,500 jobs generated.[4] For these two studies in particular, the discrepancies have been attributed to differences in the way the two studies transformed on-site labor requirements. Sulvette and Thompson divided total number of labor hours dedicated to a sewer line investment project by the average number of hours worked per year in all industries; they assumed that the average construction work-year was equivalent to the average work year in general. Vernez divided the total on-site earnings bill by the average annual wage in the construction industry alone. The latter better reflects the average number of hours worked per year in the construction industry (assuming wages on sewer projects are at the construction industry average), which is well below the average for all industries. Thus, in effect, Vernez converted a given number of labor hours per $billion of investment into more work-years or "jobs" because they implicitly used the shorter average work year that characterizes the construction industry.

Separate estimates for indirect impacts are available for two studies only, due in part to an estimation methodology that precludes disaggregated estimates in the other studies. Deflating

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[4] These figures have been adjusted to reflect expenditure in 1991 dollars.

TABLE 1: JOBS GENERATED PER $BILLION INVESTMENT IN SEWER, WASTEWATER AND WATER INFRASTRUCTURE

STUDY	GEOGRAPHIC REGION	SECTOR(S)	JOBS GENERATED PER $BILLION EXPENDITURE			
			DIRECT (A)	INDIRECT (B)	TOTAL (A+B)	TOTALS (A+B+INDUCED)
Office of Employment Projections, Bureau of Labor Statistics (1990)	National	New Water & Sewer	8,800	13,600	22,400	
Vernez et al. (1977)	National	Sewer Lines Sewer Plant	14,500 15,600	5,600	20,100	48,200-57,400
U.S. Army Engineer Institute for Water Resources, Analyzing the Economic Effects of Waterways and Ports	National	Sewer Works - Lines - Plants			15,800 16,000	
Bezdek & Hannon, (1974)	National	Water & Waste Water Treatment				34,200
Sulvette & Thompson (1975)	National	Water Lines Sewer Lines Water/Sewer System	6,400 7,300 12,300			
Massachusetts Water Resources Authority	Regional: Boston Harbor	New Sewer System				14,100[a]

[a] This represents only the effects received within the Boston Harbor regional area. These employment impacts are smaller than for national estimates since, due to leakages to other regions of the state and country, the full impact is not confined to the geographic areas immediately adjacent to the proposed investment.

the estimates to account for 1991 construction costs, data from Vernez et al. (1977) indicate that 5,600 indirect jobs would be generated per $billion invested in sewer lines. The Bureau of Labor Statistics (BLS) determined that 13,600 indirect jobs would be generated by investment of a billion dollars in new sewer and water construction. The differences between the two estimates available may be explained to some degree by the methods used to calculate job effects. BLS tallies the jobs as a count of positions and does not differentiate between full-time and part-time workers. On the other hand, Vernez presents data in terms of full-time job equivalents, so two half-time jobs would be entered as one job created even if two different people were employed. Neither method is more correct than the other; each focuses on a different socio-economic aspect of job creation.

Direct and indirect effects (but excluding induced effects) presented in Table 1 range from almost 15,800 jobs (U.S. Army Institute) to more than 22,000 jobs (Bureau of Labor Statistics, 1990) per $billion in a national context. Regional direct and indirect effects were estimated as somewhat over 14,000 jobs per $billion in the Boston harbor area. Although the differences in methods, data, and analysis may account in part for the lower regional figure, regional impacts are expected to be less than national since there is always some degree of expenditure "leakage" from local areas to other areas of the country. That is, the national employment effect is the sum of all the regional effects, but regional analyses such as the Boston Harbor study tabulate only the effects captured within the study area. For example, a hiring increase at an equipment plant in Iowa made in response to increased wastewater investment in Massachusetts would not show up in the regional study.

Total job creation extends well beyond the direct and indirect employment effects. It is estimated that direct and indirect jobs represent less than half of the jobs generated by investment in sewer and water works. One study on sewer plant investment with disaggregated information on job creation, presented in Table 1, confirms the importance of induced effects. Vernez et al. (1977) estimated that total indirect and direct jobs only accounted for between 28 and 33 percent of all jobs generated; the remainder of the jobs generated are attributed to induced effects -- the result of increased consumption and investment expenditures triggered by increased demands from the direct and indirect job generation.

Estimates of the total number of jobs created nationwide -- direct, indirect, and induced -- by $1 billion invested in water and wastewater infrastructure range from 34,200 to 57,400.

COMPARISON WITH OTHER SECTORS

Job creation effects from investment in other public works sectors are similar to those from investment in water and wastewater. However, among the three studies containing data on both sewer/water and highway infrastructure, it is worth noting that the number of jobs generated directly by sewer and water infrastructure is somewhat greater than the number generated by highway construction.

Appendix I presents a tabular summary of all the studies reviewed for this report, including those from other public works sectors. As in Table 1 on environmental investments, these additional estimates have been adjusted to account for inflation in construction costs from the study period to 1991. Although differences in data presentation among studies restricts our ability to compare estimates, we can nonetheless offer the following broad generalizations:

- Estimates of direct effects, when presented, are almost all in the range of 6,400-15,600 jobs per $billion of investment ($1991);

- Estimates of indirect plus direct employment effects, when presented, range more widely but are generally between 13,000 and 23,000 jobs per $billion of investment; and

- When presented, estimates of total effects -- direct, indirect, and induced -- are all above 33,000 jobs per $billion.

Direct job creation in the highway sector ranges from 7,700 (Bureau of Labor Statistics (1990)) to 10,700 (both Apogee (1991) and Vernez et al. (1977)). Some of the variation in the direct job generation estimates is due to varying methodologies among the models used for each study, for example, due to differences in the ways that job multipliers were developed.[5]

The national impact of direct and indirect effects combined was estimated to be from over 16,000 to 27,000 jobs per $billion of investment in highways and roads, although the upper bound (DRI study, second year of two years) may use too broad a definition of indirect effects -- that is, the method of reporting is the source of variation because it includes jobs that others would classify as induced effects. DRI estimated that 22,000 jobs per $billion of investment would be generated directly and indirectly in the first project year. The second year estimates include positive feedback of the initial first year outlays to all other sectors. Therefore, their estimate of 27,000 jobs per $billion should fall -- as it does -- somewhere between the estimates for the total of direct and indirect job generation and the estimates of total direct, indirect, and induced jobs generated.

Adding induced effects to direct and indirect, several studies estimated total national employment effects of $1 billion invested in highways and roads as 33,800 or greater jobs per $billion (Bezdek and Hannon (1974), Wartle (1982), and Apogee (1990)).

The regional job multipliers for highway and road investments were lower than the national multipliers -- averaging approximately 10,000 jobs per $billion dollars of investment for all three effects combined. The lower regional employment effect is due to expenditure "leakages" to other regions, particularly for induced effects -- the smaller the geographic region, the less that induced expenditures are satisfied from within the region. Moreover, since access to material inputs for construction may be limited in certain regions, indirect effects may be less in some regions than others. A simulated comparison study of $10 million of highway construction in Nebraska and Pennsylvania exemplifies this result. Pennsylvania was found to be a more industrial economy and tended to produce more of the material inputs to construction than Nebraska with a less industrialized economy.[6] Although some of the induced effects are not captured within the immediate region, they are still generated and contribute to employment and economic well-being elsewhere in the nation.

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[5] See Appendix II for a more detailed discussion of input-output analysis and multiplier development as well as a description of the more widely-used models.

Comparing these data with those studies focusing on clean water infrastructure indicates that the job creation effects may be more extensive for investments in water and wastewater than in other areas such as highways and roads. In the studies that contained data on both types of projects, the differences in multiplier effects of investment in the two areas were as follows:

- BLS study: 8,800 and 13,600 of direct and indirect jobs respectively per $billion investment in new water and sewer compared to 7,700 and 11, 800 per $billion in new roads;

- Vernez et. al: 14,500 and 15,600 direct jobs in sewer lines and sewer plant respectively per $billion compared to 10,700 direct jobs in highways or roads; and

- Sulvette & Thompson: 12,300 direct jobs for $billion in water/sewer systems versus 8,600 for highways/roads, though only 6,400 and 7,300 per $billion respectively for water and sewer lines alone.

SUMMARY

The studies reviewed for this report reflect positive impacts of public works investment. There are also indications from several studies that investment in clean water infrastructure has a greater jobs multiplier than investment in highways and roads. In general, for the data available, it is clear that direct employment effects are only a portion of the job generation potential of public works investments. That is, indirect effects are estimated to generate anywhere from half to double the amount of employment as direct effects, and induced effects -- where comparisons are possible -- boost the total effect to a multiple of the direct effects taken alone.

Investment of $1 billion in public works would be expected to generate from 6,000 to as many as 15,600 jobs directly related to project construction. The permanence of these effects, of course, depends on continued expansion of the economy, but the "pump priming" effects of early initiation of contemplated investments in infrastructure is evident. Investment of $1 billion would stimulate at least 34,200 direct, indirect, and induced jobs -- perhaps as great as 57,400 in sewer plant investment.

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[6] Benjamin Stevens, George Treyz, David Erlich, and James Bower, "State Input-Output models for Transportation Impact Analysis," RSRI Discussion Paper Series: No. 128, December, 1981.

APPENDIX I

SUMMARY TABLE OF JOB GENERATION EFFECTS

SUMMARY TABLE: JOBS GENERATED PER $BILLION INVESTMENT IN PUBLIC WORKS INFRASTRUCTURE

STUDY	GEOGRAPHIC REGION	SECTOR(S)	JOBS GENERATED PER $BILLION EXPENDITURE			
			DIRECT (A)	INDIRECT (B)	TOTAL (A+B)	TOTAL (A+B+INDUCED)
Office of Employment Projections, Bureau of Labor Statistics (1990)	National	New Roads New Communication New Electric Utilities New Water & Sewer Gas Utility & Pipeline Local Transit Conservation and Development Miscellaneous non-building Maintenance & Repair	7,700 10,900 11,100 8,800 8,600 6,100 8,300 9,400 14,000	11,800 10,400 12,200 13,600 12,900 12,700 13,600 11,700 10,300	19,400 21,100 23,300 22,400 21,500 18,800 21,900 18,800 24,300	
Apogee Research, (1991)	National	Highway	10,700[a]			41,600
New Jersey Passaic Tunnel (Ben Stevens & Apogee Research, PC I-O)	State of New Jersey	Flood Control	6,800	7,700	14,500	
	Twelve-County Region	Flood Control	6,600	6,300	12,900	
Aviation Resource Partners	Regional: New England Regional: Massachusetts Regional: Suffolk Co.	Airport, Port, & Bridge Airport, Port, & Bridge Airport, Port, & Bridge			14,200[b] 11,500[b] 8,500[b]	
Massachusetts Water Resources Authority	Regional: Boston Harbor	New Sewer System				14,100[b]
Wisconsin Department of Transportation	Regional: Highway 29/45/10 Corridor	Highway				10,800[b]
Coalition of Northwestern Governors High Speed Rail Task Force	Regional: Northeastern States	High Speed Rail				10,200[b]

Delaware Valley Regional Planning Commission	Regional: Pennsylvania	Transit				11,000[b]
Indiana Department of Transportation	Regional: Indiana	Highway				9,400[b]
U.S. Army Engineer Institute for Water Resources, Analyzing the Economic Effects of Waterweys and Ports	National	Sewer Works				
		- Lines			15,800	
		- Plants			16,000	
		Civil Works Construction				
		- Land			14,600	
		- Dredging			15,400	
DRI Economic Benefits of Additional Transportation Project Spending	National	Highway (Year 1 of 2 years)			22,000[c]	
		Highway (Year 2 of 2 years)			27,000[c]	
Wartle (1982)	National	New Highways and Streets				39,700
Bezdek & Hannon, (1974)	National	Highway				33,800
		Railroad and Mass Transit				35,100
		Educational Facilities				35,500
		Water & Wastewater Treatment				34,200
Sulvette & Thompson (1975)	National	Highways or Roads	8,600			
		Water Lines	6,400			
		Sewer Lines	7,300			
		Water/Sewer System	12,300			
Vernez et al. (1977)	National	Highways or Roads	10,700	5,600	16,300	
		Sewer Lines	14,500	5,600	20,100	
		Sewer Plant	15,600			48,200-57,400
		Flood Protection	24,100	5,200	29,300	67,500-97,300

; Direct impacts here include construction only, all other impacts are considered indirect.

[b] : These refer to the effects within the region only; due to leakages, these are necessarily lower than the full national employment impact which will include the impacts distributed to other areas of the country.

[c] : The first year of this study incorporates the direct and indirect result of increased federal outlays. The second year of the study shows a stronger impact due to the combined effect of the direct effects of the outlays in the second calendar year and the positive feedback of the initial 1992 outlays on other sectors.

WATER POLLUTION CONTROL IN MAINE

Getting the Job Done Without Bankrupting Our Communities

Drawing by Bob Nilson

Continuing Threats:

Centralized Sewage

One out of three of Maine's clambeds is still closed by pollution. Dozens of Maine's cities and towns will need to upgrade their treatment systems to meet existing clean water standards.

Industrial Discharges

Maine industries dump at least 1.6 million gallons of pollutants into Maine's major rivers and municipal treatment plants, leaving one out of five miles with elevated toxics levels.

Non-Point Source Pollution

One out of five of Maine's lakes is not fully swimmable and fishable. Groundwater resources are threatened by pesticides, fertilizers, gasoline, and septic system leakage.

THE COST FOR CLEANUP: $1.08 Billion For Sewage Treatment Needs Alone.

> *"Without continuation of the federal financial role in water quality management, long-term water quality trends in Maine and the Nation will be towards degradation rather than protection and improvement."*
>
> Maine Department of Environmental Protection
> 1992 Water Quality Assessment

Who's Going To Pay - The Taxpayers or the Polluters?

by
Doug Bogen - Randy Walsh
Clean Water Fund/Clean Water Action, 10 Vaughn Mall, suite 8, Portsmouth, NH 03801, 603/430-9565

Statement by Congressman THOMAS H. ANDREWS, 1st District, Maine

Access to clean water is a basic right that all Americans should share. Unfortunately, what too many Americans do share are skyrocketing water and sewer bills to secure that right, because those who pollute our waters are not required to clean up their own mess. That is unfair. It is time to lift the financial burden from towns, cities, and citizens, and make the polluters pay.

I am proud to be a co-sponsor of H.R. 2199, the Polluter Pays Clean Water Funding Act. This bill would finally put a price on pollution activities and start to shift the burden onto polluters. It would not only punish polluters and raise the money to clean our waters, it would also provide a powerful inducement for encouraging pollution prevention and resource conservation.

One of the first lessons my mother taught me was to clean up my own mess. As a young boy, I may have occasionally made a fuss about that lesson, but inside I knew it was only fair. It's about time for those responsible for polluting our waters to learn this basic lesson too. It is a lesson that should be applied because it will mean cleaner water for many Americans and because it is only fair.

Statement by Congressman GERRY E. STUDDS, Chair, Merchant Marine and Fisheries Comm.

What is the value of clean water? More and more Americans are faced with that question each day as clean water becomes less available and more expensive.

Local officials, struggling to allocate limited funds for a broad range of community services, are protesting that the Clean Water Act is an expensive, unfunded federal mandate. Residents of communities nationwide are questioning whether this is money well spent or an unjustified cost of complying with another government requirement.

This year, as we reauthorize the Clean Water Act, we must decide what clean water is worth and who should pay for it. Ratepayers are not wholly responsible for poor water quality, and should not be wholly responsible for the bill.

While we cannot dramatically increase federal support at a time when our Treasury evokes images of Old Mother Hubbard rather than Daddy Warbucks, we can, and should make those responsible for degrading water quality pay more for its clean up. We can do this by imposing taxes on practices and products that pollute water and dedicating those taxes to pay for water pollution control. I have proposed this approach in H.R. 2199, the Polluter Pays Clean Water Funding Act. This initiative begins to reflect the financial commitment we must make to protect this vital resource and make clean water affordable and available to every American.

We cannot walk away from the need for clean water. We cannot claim to "solve" the problem by passing an unrealistic authorization bill that will never receive adequate appropriations. We cannot leave this financial burden on the doorsteps of the ratepayers in our communities.
HELP ME STOP UNFUNDED MANDATES, AND MAKE POLLUTERS PAY!

This Reports Findings Are Endorsed By:

Maine People's Alliance

Maine League of Women Voters

Maine Sierra Club

Physicians for Social Responsibility

The Island Institute

Our Water Resources, Still At Risk!

In the twenty years since the passage of the Clean Water Act Maine's water quality has improved significantly. Treatment plants for sewage and industrial discharges have been built and industrial use of toxic chemicals has been reduced. But much remains to be done to bring our waterways back to a state of environmental health. Not surprisingly, the remaining threats are the most challenging and insidious.

Impacts to Coastal Waters:

Beaches in the Portland area still face chronic pollution-related closures. Three Peaks Island beaches have been closed to swimming on a permanent basis, while a newly-completed sewage treatment plant is only expected to improve two of them. East End Beach was closed one-third of the summer in 1992 and half the summer in 1991. Health advisories are issued for the area any time more than one-half inch of rain falls.[1]

Shellfish Beds: 35% of harvestable shellfish beds along the coast have been closed because of wastewater contamination or lack of testing resources to approve them. 27% of commercial "prime habitat" beds have been closed,[2] resulting in an $8.1 million loss to the industry between 1985 and 1990.[3] Dioxin has been detected in shellfish at the mouths of the Kennebec, the Penobscot, and the Presumpscot rivers,[4] and elevated lead levels have been detected in mussels at numerous sites throughout the state.[5]

Casco Bay: An Estuary at Risk

Despite its scenic and relatively undeveloped appearance, Casco Bay has come under increased scrutiny for contamination of its sediments and sealife. The Maine Dept. of Environmental Protection has identified three areas of concern for toxic contamination in the Bay, totaling 2310 acres.[6] 43.4% of its shellfish beds have been closed[7] and the beaches around Portland face chronic health advisories as a result of sewage releases into the bay.

Much of the toxic contamination probably resulted from past industrialization utilizing coal, heavy metals and petrochemicals, though automobiles are thought to contribute significant quantities of pollutants through roadway runoff and airborne deposition. Combined sewer overflows and non-point runoff from surrounding communities are other major sources of current pollution problems.

Ambient water quality testing begun last year will develop a base-line picture of the current health of the Bay's waters, but much more detailed monitoring, focussed on biological uptake of pollutants, will be required to assess future protection needs.

Impacts to Inland Waters:

Rivers - Fish consumption advisories have been issued on 236 miles, or 22.5%, of Maine's largest rivers because of Dioxin contamination.[8] A total of 472 miles of rivers has been designated as not supporting clean water standards,[9] with organic enrichment from non-point sources being the other major cause.

Lakes - 21% of lake acreage in Maine is not swimmable and/or fishable, mainly because of organic enrichment from non-point sources.. 52 lakes, or 5% of total acreage, have repeated algal blooms and another 5% are threatened.[10]

Water Pollution Sources

While the major sources of water pollution are generally known, the original Clean Water Act did not anticipate the size or the complexity of the efforts needed to eliminate them. In some cases, as with industrial discharges, the law has served to condone the slow poisoning of our waterways, while in other cases it has failed to direct resources to areas of greatest need.

CENTRALIZED SEWAGE:

Even though the Clean Water Act requires all municipal sewage collection systems to have secondary treatment levels, there are at least 55 communities in Maine requiring new treatment plants or major system upgrades (individual funding needs greater than $1 million) to meet federal clean water standards over the next two decades.[11] Of particular concern are 15 communities currently violating clean water standards (see chart below) and 11 communities which have been given waivers to dump inadequately treated sewage and put off needed treatment upgrades indefinitely.

While most large cities have secondary treatment systems, their pollution control is often seriously compromised by the existence of combined sewer overflows (CSOs). Many older coastal or riverside communities combine stormwater runoff with regular sewage flows, which often overwhelms the limited treatment capacities of their systems. With no space in the system to put the increased wastewater volume, plant operators have no other choice but to dump the sewage directly into waterways without treatment. Thus communities with otherwise adequate treatment systems continue to pollute their waterways with raw sewage every time it rains. There are 58 communities in Maine with CSO outfalls, the highest incidence for New England states.[12]

Maine municipal sewage systems violating clean water standards from 4/92 to 3/93[13]

Anson-Madison
Baileyville
Bangor
Bar Harbor
Bucksport
Caribou
Corinna
Farmington
Hartland
Machias
Mount Desert
Oakland
Paris
Pittsfield
So. Portland

Alternative Technologies: Getting off the Sewage Treatment Treadmill

Our nation's approach toward sewage treatment has changed very little over the past 50 years. In the interest of centralized control, we have built systems that combine all wastewater from densely populated areas (sewage, washwater, storm runoff and industrial toxic waste). The result is large quantities of toxic sludge, millions of gallons of polluted water, and huge management costs.

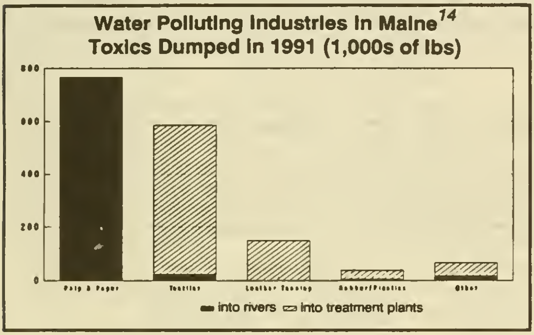
Fortunately, new technologies and systems have been developed to decentralize our wastewater treatment, drastically reduce the volume and extent of wastewater production, and recycle the nutrient value of human waste back into the soil. These technologies include composting toilets and sand or peat filters for individual homes, and constructed wetlands or other "living machines" for whole communities. This approach has been successfully demonstrated in the community of Stinson Beach, California, where 680 homes rely on on-site wastewater treatment while conserving resources and maintaining strict effluent regulations. Expanded use of these techniques could ensure a sustainable solution to our human waste problems at less cost to our environment and economy.

Water Pollution Sources

INDUSTRIAL DISCHARGES:

Limited research to date has uncovered elevated levels of heavy metals and volatile organic chemicals in the sediments and food chains of Maine's lakes, rivers, and coastal areas. While some of this pollution is the result of past dumping, current industrial dischargers play a significant role introducing toxins into our rivers and sewage treatment plants.

Large-scale manufacturing industries are required to report to the EPA's Toxic Release Inventory all quantities of certain toxic wastes released into the environment each year. Those quantities are summarized in the graph at left and the chart below. Unfortunately, independent monitoring of the levels of toxic pollutants that actually end up in our waterways is minimal at best. The EPA and state agencies are ill-equipped to verify all industry reports, and small-scale or non-manufacturing industries are not even required to report their emissions.


Water Polluting Industries in Maine[14]
Toxics Dumped in 1991 (1,000s of lbs)

Poisoning the Food Chain

When released into our rivers, persistent toxins - such as dioxin or chromium - are concentrated through the food chain to deliver toxic doses to fish-eating wildlife or people. Toxins dumped into treatment plants are either collected in the sewage sludge (which then require special landfilling), or passed through to the plant's receiving waters.

Top Five Chemicals Deliberately Released To Maine's Waterways (in pounds)[15]

Rivers		Public Treatment Plants	
Ammonia	303,883	Sulfuric Acid	387,341
Methanol	179,000	Ammonium Sulfate	162,140
Glycol Ethers	124,000	Chromium Compounds	79,632
Chloroform	35,251	Ammonia	71,334
Chlorine	33,343	Ethylene Glycol	24,000

(note: The paper industry is not required to report quantities of dioxin - an extremely dangerous substance and a byproduct of chlorine bleaching - dumped into Maine's rivers)

Water Pollution Sources

NON-POINT RUNOFF AND LEACHATE:

Non-point sources, those not directly attibutable to specific locations, are being increasingly implicated in the majority of water pollution problems in Maine. Despite this, federal legislation has only recently begun to address them, and has yet to devote substantial financial resources toward their elimination.

Agriculture and Forestry - Major impacts occur on 72 miles of rivers and streams and 5222 acres of lakes and ponds.[16] Studies done in 1980 and 1989 found detectable levels of pesticides in nearly half the private wells tested near potato fields. Nitrate levels exceeding drinking water standards were found in 23% of wells in potato farming regions and 40% of wells in market garden/forage crop regions.

Urban Runoff/Shoreline Development - Many coastal communities in southern Maine have experienced a 300% or more increase in land development in the past 30 years.[17] Major water quality impacts are estimated on 32,805 acres of lakes and ponds. Leachate from road salt storage piles has made 130 private wells unpotable and salt applications have contaminated at least another 45 wells around the state. Excess Nutrient releases from both agriculture and development activities have had the most significant of any impact on surface water quality, with major impacts on 117 miles of rivers and streams and 135,312 acres (14%) of lakes and ponds.

Leaking Underground Storage Tanks - Considered the greatest source of groundwater contamination in the state, with DEP identifying over 400 sites on its priority list, affecting 225 private wells. Between 1980 and 1988, petroleum discharges contaminated over 500 private wells.

China Lake: Ravaged by polluted run-off

4400 acre China Lake, a formerly pristine coldwater fishery near Waterville, is a classic example of how non-point source pollution can damage a lake's ecology. In just a few short years oxygen-consuming algae blooms, the result of non-point source pollution into the lake, choked off existing fish populations and dramatically reduced water clarity.

The culprit at China Lake is phosphorus that entered the lake from increased development and farming practices in its watershed. If not managed correctly, phosphorus washes out from disturbed soil, resulting in ecolgically harmful algae blooms downstream from contaminated watersheds. This preventable, but all-too-common problem is is predicted to cost $1 million per lake to reverse.[19]

Landfills - There are at least 185 active landfills in the state, with another 92 known inactive sites, and 64 closed or partly closed sites. 32% have been found to have surface and/or groundwater contamination, 20% with serious contamination.

Septic Systems - With over 230,000 septic systems of widely varying functionality around the state, leachate and leakage from them is a major source of groundwater and surface water contamination. One out of three private wells in the state show bacterial contamination above drinking water standards. Nationwide, leaking septic systems have been implicated in 37% of shellfish bed closures.[18]

Who Pays?

Unmet Financial Needs

We have the technology and the legal authority to eliminate major sources of water pollution in Maine. The main stumbling block to implementation is the lack of funds available to do the job.

Over **$1 billion** in funds will be required over the next 20 years for sewage treatment ($50 million per year) just to meet existing clean water standards in Maine, while about $26 million per year has been made available, solely in the form of loans.[21] Another **$27 million** will be needed just for identified non-point source pollution management programs (approximately 12% of which can be paid for with existing funds).[22]

Maine's 20 Year Sewage Needs[20]

Expenditure Type	# of Communities	Cost in Millions
CSO* Redesign and Rebuild	42	$814
Secondary Facilty Construction	48	$119
New Sewers & Systems	49	$114
Repairs to Existing Systems	30	$33

**combined sewer overflows*

Total cost: $1.08 billion

CSO Needs: Maine's Top 5 Cities (in millions)[23]

Portland	$159.6
S. Portland	$79.0
Augusta	$64.6
Lewiston	$55.6
Auburn	$37.1

Maine cities facing the largest sewage plant expenses over the next 20 years (in millions)[24]

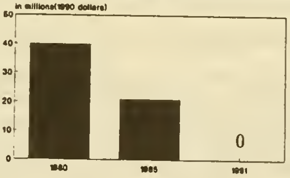
Saco	$27.8	Portland	$13.3
Berwick	$21.7	Sanford	$12.0
Bangor	$20.1	Paris	$11.3
Biddeford	$17.4	Rangely	$10.9
So. Portland	$14.5	Peru	$7.8

Figures given do not include cost estimates for CSO control (see CSO chart on this page)

Disappearing Federal Support

In recognition of the huge costs involved in pollution control, the Clean Water Act set the federal government as the primary source of funding for sewage treatment systems. Beginning in 1980, those funds steadily dried up, with the burden being shifted to state and local governments(see chart at right).

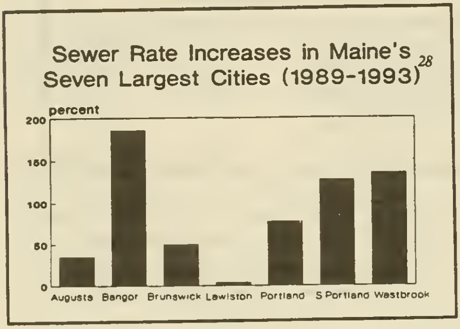
Annual Federal Sewage Treatment Grants to Maine communities (1980-1991)[25]

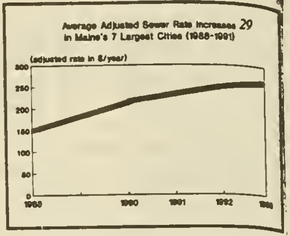


Who Pays?

Mounting Local Bills

As federal and state funding disappears, local municipalities are increasingly shouldering the burden for new treatment plant costs. Over the past five years, **sewer service rates** for the seven largect cities in Maine have **risen** an average of **85 percent.**[26] Nationwide, sewer rates are rising at 3 times the rate of inflation, and are projected to increase eleven-fold in the next 20 years[27]


Sewer Rate Increases in Maine's Seven Largest Cities (1989-1993)[28]


Average Adjusted Sewer Rate Increases[29] in Maine's 7 Largest Cities (1988-1991)

What Industry Pays to Pollute Now

Industries in Maine pay anywhere from $2000 to $13,600 once every five years for processing and licensing of permits to dump wastes into rivers. Communities with industries dumping into municipal treatment plants have to pay $2000 - $4200 in additional fees. The industries pay specially contracted sums to the municipalities, additional to regular sewer rates. The fees are put into a general environmental protection fund and are at the maximum levels set by current state law.[30]

The Costs of NOT Acting on Water Pollution (per year)

$1.254 billion from coastal tourism in Maine (1986)[31]
$133 million from commercial fisheries (1989)[32]
(more than $250 million from tourism/rec. in Casco Bay alone(1986-88)[33]
$300 - 500 million generated from inland sport fisheries[34]
$140 - 300 million from marine sport fisheries[35]

Total Threatened Income: $1.8 - 2.1 billion

Vinalhaven Island: Difficult Financial Burden

As one example, Vinalhaven Island, at the entrance to Penobscot Bay, is subject to coastal pollution from inadequately treated sewage discharges. Most of its shellfish beds have been closed because of this pollution. The price tag for a new treatment facility to replace the malfunctioning systems ranges from 3 to 6 Million dollars. However, the community has a population of only 1,000 year-round residents and just one-eighth of that population would be serviced by the system.[36] Other coastal communities are facing similar discharge problems and costly replacement solutions. The challenge is how to fund cost effective treatment systems for these communities.

Clean Water And Jobs

While it is easy to dwell on the costs that increased water pollution control funding will put on the economy it is also necessary to account for the potential benefits in terms of new jobs. Funding directed toward areas of greatest need will also provide a boost to small communities and larrge cities where unemployment and other economic impacts are most pronounced.

Investing in Infrastucture

Investment in water and sewer projects stimulates the economy from increased investment in plant and equipment and job creation. In fact, water and sewer projects are among the highest job producers of all public works projects. A recent study estimated that every $1 billion spent on water and sewer projects could create between 34,200 and 57,400 direct, indirect, and induced jobs.[37] The EPA estimates that meeting national wastewater treatment needs for the next 20 years would cost $111 billion.[38] That level of investment would support about 100,000 local construction-related jobs (including full and part-time) and an approximate total of 5,000,000 job-years over 20 years.[39] **Of the $1.08 billion needed for water treatment in Maine, 37,000 to 62,000 jobs would be created.**

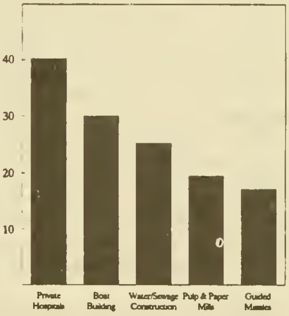
Job Breakdown

Direct Jobs (range: 8,800 to 31,000 jobs)[40]
Jobs which result from the actual construction of the water project, including planning, engineering, bonding, legal services and insurance, manual labor, heavy equipment operation and other special construction skills, safety and supervision.

Indirect Jobs (range: 5600 to 13,600 jobs)
These are created by purchases to support the constuction project, including mining and raw material production, materials and labor transportation, equipment manufacture, communications and housing.

Induced Jobs - The Ripple Effect (no specific estimates)
Water and sewer projects stimulate increased expenditures for various goods and services by the workers and families who benefit from the new jobs. This spending stimulates new jobs in areas such as recreation, automobiles, processed foods, and domestic appliances.

Jobs Created Per $1 Billion Spent
(Direct & Indirect, in thousands)[41]



Other Economic Benefits of Clean Water Investment

Water quality improvements in a region will attract new water-dependent industries, such as fishing, aquaculture and tourism. Smaller communities with improved wastewater treatment faciilities will be in a better position to attract new businesses and residential development, both labor intensive.

The Polluter Pays

Funding the Clean Water Act

With current funding of $2 billion per year and nationwide needs over the next 20 years projected at $200 billion,[42] the goals of the federal Clean Water Act are clearly being shortchanged, to the detriment of future generations. Additionally, serious concerns such as non-point source pollution and pollution prevention/watershed management are not being adequately addressed under current law.

Who Bears the Cost?

Our society can no longer afford to subsidize the use of its waterways as a toxic waste disposal system. To relieve taxpayers and ratepayers of this burden, we must seek greater equity and direct responsiblity by making the industrial and commercial sectors pay for their share of the problem.

THE SOLUTION: Re-design and Re-direct Clean Water Funding

Re-design Funding Process for Equity and Waste Minimization:

To spread out the costs of funding Clean Water Act measures, polluting industries should pay a fee for each pound of polluting material they dump into waterways or public treatment plants, with higher fees per pound according to relative toxicity. As the major direct source of non-point pollutants, the agribusiness industry should pay fees for each pound of pesticides, fertilizers, and processed animal feeds. To encourage water conservation, all commercial users of purchased water should pay a fee for quantities used. These fees, in addition to existing funding from general revenues, will dramatically increase funding available for Clean Water Act goals and **provide strong incentives to reduce toxic waste and conserve resources.**

Rep. Studds' "Polluter Pays" Bill (H.R. 2199) triples clean water funding to $6 billion/yr.:

$2 billion from fees on industrial waste discharges

$1 billion from fees on production of pesticides, fertilizers, and processed animal feeds

$1 billion from fees on industrial and commercial water purchases

$2 billion from current general revenue

(This level of funding over a 20 year period would provide 80% of projected national needs.)

Re-direct Funding to Areas of Greatest Need:

In addition to significantly increasing sewage treatment loan programs, we need to re-direct funding to smaller communities unable to apply economies of scale to their treatment needs, and to communities overburdened with sewer service rate increases. Poor households must not be denied water and sewer services because of inability to pay spiraling rates. Substantial funding will also be needed to prevent non-point source pollution and provide for watershed and estuary management. **Clean Water Act funding should be made more inclusive and focused on our most threatening pollution problems.**

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21. Maine Municipal Bond Bank, *List of Bonding Commitments*. June 30, 1993.

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28. David Dodge, op. cit.

29. ibid. Adjusted rate is calculated cost per family unit (see note 26 above). Figures for each city and year were weighted by sewered population in that city to obtain final average increases.

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34. Maine Dept. of Inland Fisheries and Wildlife, *A Study of the Impact of Game and Non-game Species on Maine's Economy.* December, 1990.

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37. National Utilities Contractors Association (NUCA), *A Report on Clean Water Investment and Job Creation,* March 20, 1992, p. 6.

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39. Congressman Gerry E. Studds, *Financing Clean Water: A Proposal for a National Clean Water Investment Corporation,* Committee on Merchant Marine and Fisheries, U.S. House of Representitives, January, 1993.

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41. Bureau of Labor Statistics, Office of Employment Projections, *1988 Employment Requirements Table.* May 1991.

42. See page 2 of H.R. 2199 proposed by Rep. Gerry Studds on May 20, 1993. Estimates for CSOs, stormwater, and non-point source funding needs were added to existing needs assessment figures.

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April 8, 1994

The Honorable Gerry Studds
U.S. House of Representatives
Committee on Merchant Marine and Fisheries
Room 1334, Longworth House Office Building
Washington, DC 20515-6230

Dear Chairman Studds,

Thank you for the opportunity to testify before the Subcommittee on Environment and Natural Resources, on H.R. 2199, the Polluter Pays Clean Water Funding Act.

At the time of the hearing we were unable to get final endorsement from several other interested groups. Please add the following organizations as supporting our testimony:

Chesapeake Bay Foundation
Conservation Law Foundation of New England
Friends of Casco Bay
Long Island Soundkeeper Fund, Inc.
Long Island Sound Taskforce
National Audubon Society
Natural Resources Defense Council
North Carolina Coastal Federation
Northwest Environmental Advocates
People for Puget Sound
Save the Bay, Rhode Island
Save the Harbor/Save the Bay
Save Wetlands and Bays
Sierra Club

Thank you again for the invitation, and as always we look forward to working with you in the future.

Sincerely,

Dawn M. Martin

Dawn M. Martin
Political Director

A non-profit organization dedicated to saving America's oceans.

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GARY D. MYERS
President

March 10, 1994

The Honorable Gerry Studds, Chairman
Merchant Marine and Fisheries Committee
U.S. House of Representatives
Room 1334, Longworth House Office Building
Washington, D.C. 20515

Dear Mr. Chairman:

Thank you for the invitation to testify at the Committee hearing on H.R. 2199. We would like to respond by submitting these written comments for the record.

As you know, our opposition to your bill is unwavering. It falsely assumes the use of farm inputs is pollution, and it assumes that reducing the use of these inputs through punitive taxation will result in cleaner water. Both assumptions are false.

The bill is the wrong way to fix the problem of unfunded mandates. Examining the mandates -- through the use of risk assessment and cost-benefit analysis -- is the right way. Raising taxes and expanding the size of government is the wrong way.

The bill, in fact, achieves the opposite of its intended purposes in the following ways:

> --It does not tax the polluter. The problem it seeks to address is the inability of urban water authorities -- such as those in Boston -- to meet the mandates of the Clean Water Act. In order to comply, many cities must construct new facilities and raise water and sewer rates. The pollution problem they are dealing with is caused by the population in those cities. Your bill taxes products that have nothing to do with the clean water problems in those urban areas. In effect, it subsidizes pollution.

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In fact, the very clean water problems you cite -- those in Washington, D.C. and Milwaukee -- were caused by bacteria associated with manure and sewage sludge, products exempted from the tax in your bill.

--It penalizes environmental stewardship. The farmers and agribusinesses you seek to tax have spent large amounts of money on environmental upgrades and stewardship. Soil erosion has been dramatically increased; efficiency of fertilizer use has increased, meaning farmers are producing more with less, thus reducing losses to the environment. Taxing those same environmental stewards reduces their financial ability to continue this progress.

We look forward to a continuing dialogue on this issue.

Sincerely,

Gary D. Myers

GDM/vs

ISBN 0-16-044835-2

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